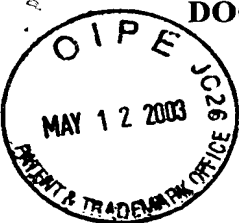


#811  
DOCKET NO.: DATE-0003

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Jonathan Bricklin, Ronald N. Shostack

And Grady M. Werner

Serial No.: 09/826,230

Filing Date: April 4, 2001

For: Web Based Dating Service

Confirmation No.: 2482

Group Art Unit: 2152<sup>21</sup>

Examiner: Not Yet Assigned

DATE OF DEPOSIT: May 8, 2003

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, POSTAGE PREPAID, ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, DC 20231.

  
TYPED NAME: Paul B. Milcetic  
REGISTRATION NO.: 46,261

Assistant Commissioner for Patents  
Washington DC 20231

Sir:

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MAY 15 2003

Technology Center 2100

RENEWED PETITION TO MAKE SPECIAL PURSUANT TO  
37 CFR § 1.102 and MPEP § 708.02VIII

Applicant hereby renews the petition dated February 19, 2003 to make this application special because of actual infringement.

Accompanying this petition is:

1. A Preliminary Amendment in support of Petition to Make Special, amended to include a statement that if the Office determines that all the claims presented in the present application are not obviously directed to a single invention, the Applicants will make an election without traverse;

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2. A statement that a pre-examination search was made, listing the field of the search by class and subclass, publication, Chemical Abstracts, foreign patents, etc.;
3. An Information Disclosure Statement and PTO Form 1449 identifying each of the references deemed most closely related to the subject matter encompassed by the claims is enclosed;
4. One copy of each reference listed on the above-referenced PTO Form 1449;
5. A detailed discussion of the references which particularly points out how the claimed subject matter is patentable over the references.

Fee (37 CFR § 1.17(i))

The fee required is to be paid by:

- ☒ A check in the amount of \$130.00 is attached. Please charge any deficiency or credit any overpayment to Deposit Account No. 23-3050.
- ☐ Please charge Deposit Account No. 23-3050 in the amount of \$130.00. This sheet is attached in duplicate.
- ☒ The Commission is hereby authorized to charge any underpayment of the above fees associated with this communication or credit any overpayment to Deposit Account No. 23-3050. This sheet is attached in duplicate.

#### REMARKS

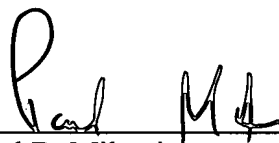
Applicants hereby submit a Renewed Petition to Make Special in response to the Decision on Petition to Make Special dated April 1, 2003, which denied Applicants' Petition to Make Special mailed February 19, 2003. Applicants respectfully submit that the denial of Applicants' petition was in error, but have added the requested statement nonetheless.

In the Decision on Petition to Make Special, the Examiner cited MPEP § 708.02, Section VII (B), first paragraph, to deny the petition because it "[did] not indicate that Applicant will make an election without traverse if the Office determines that all claims are not obviously directed to a single invention." (p. 2). Applicants respectfully submit that the Examiner failed to consider MPEP § 708.02, Section VII (B) in its entirety. Section VII (B), second paragraph states that "[t]he election [of the first paragraph of VII(B)] *may* be made ... at the time of filing the petition for special status." The MPEP goes on to state that if such an election is not included in the original petition, and the Office determines that a restriction

requirement should be made, "*the established telephone restriction practice will be followed.*" (MPEP § 708.02, Section VII(B), second paragraph). Therefore, Applicants respectfully submit that the proper course of action with respect to Applicants' original Petition to Make Special would have been to grant the petition and, if during prosecution the Office determined that a restriction requirement should be made, the Examiner would then follow telephone restriction practice.

Nonetheless, in an effort to expedite the prosecution of the present application, Applicants have amended the attached Preliminary Amendment to include a statement as desired by the Examiner. Accordingly, Applicants respectfully request that the Office grant the present Petition to Make Special.

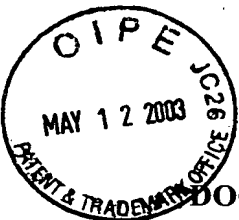
Respectfully,



Paul B. Milcetic  
Registration No. 46,261

Date: May 8, 2003

Woodcock Washburn LLP  
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DOCKET NO.: DATE-0003

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Jonathan Bricklin, Ronald N. Shostack

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Serial No.: 09/826,230

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Examiner: Not Yet Assigned

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TYPED NAME: Paul B. Milcetic  
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Assistant Commissioner for Patents  
Washington DC 20231

Sir:

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DETAILED DISCUSSION OF REFERENCES  
PURSUANT TO 37 C.F.R. 1.102(d)

Each of claims 1-36 and 39-41, as amended, is novel over the four references cited in the September 19, 2002 Search Report. In order for a claim to be rejected on the ground of anticipation or obviousness, the prior art reference(s) must teach or suggest *each and every element of the claim*. See Trintec Indus., Inc. v. Top-U.S.A. Corp., 295 F.3d 1292, 1295 (Fed. Cir. 2002) ("a single prior art reference anticipates a patent claim if it expressly or inherently describes *each and every limitation* set forth in the patent claim") (emphasis supplied); MPEP §2143.03 ("[t]o establish a prima facie obviousness of a claimed invention, *all the claim limitations* must be taught or suggested by the prior art") (emphasis supplied).

With respect to claims 1-36 and 39-41, as amended, none of the four references cited in the United Kingdom Search Report, individually or in combination, disclose each element of the claims. Thus, none of the four references are an impediment to the allowance of the pending claims as amended.

In particular, the present invention is directed to a virtual dating service, and incorporates features especially suited to optimizing an individual's ability to identify and facilitate meaningful friendships and romantic relationships using a chat room environment. The four references cited in the September 19 2002 UK Search Report neither teach nor suggest these features.

For example, each of independent claims 1, 15, 29, 33 and 39 and 40, as amended, incorporate the elements of either (a) providing an indication of the extent which chat participants in a particular chat (room) environment are collectively compatible with a user of the service; or (b) determining an optimal chat (room) environment whose participants are collectively most compatible with the user. Such features allow user to either manually navigate his or her way to a chat room having participants with whom he or she is most compatible or to have the service identify such a chat room automatically. Thus, independent claims 1 and 15 for instance recite providing an **"indication of the extent to the which . . . chat participants using" a "chat environment are compatible with a user."** Similarly, Independent Claims 29, 33, 39 and 40 recite **"determin[ing] a one of" a "plurality of chat" room "channels having an optimal compatibility value."**

Further, once a mutually compatible subscriber is identified, a user may, together with that subscriber, enjoy the service's simulated date feature, which typically includes the ability for both users to simultaneously view and comment upon an animated depiction of a place of

interest. Thus Independent Claim 41 recites “a virtual date software element” that functions to “transmit a video clip file to” subscriber client computers.

By contrast, neither the Isao Reference, the Local2me.com Reference, the Tang Reference, nor the Luckevich Reference disclose (a) providing an indication of the compatibility of particular chat rooms based on the compatibility of chat participants using such chat rooms; (b) automatic selection of a chat room on the basis of such compatibility; or (c) facilitating subscriber participation in a virtual date.

The Isao Reference purports to describe a method and device for computer communication, rather than a virtual dating service. In any event, the Isao Reference is not prior art. The Isao Reference was published August 8, 2001, while the present application was filed April 4, 2001 and properly claims priority to provisional application 60/255,672 filed December 14, 2000. Therefore, the Isao Reference does not satisfy the requirements of 35 USC §102(a) or 102(b) and cannot render the claims of the present application invalid for lack of novelty over the prior art.

The Local2me.com Reference describes an improved electronic mail system. Subscribers initially specify information about themselves that is subsequently stored in a profile corresponding to the subscriber. The information includes “acceptance criteria” (p. 6, 1.13) allowing subscribers to screen out electronic mails based on the identity of the sender, the subject of the electronic mail (p. 6, 1. 24) or other criteria. The Local2me.com reference however provides little detail concerning what “acceptance criteria” a subscriber may select. When electronic mails are sent, the system determines based on the subscribers’ acceptance criteria whether the sender and recipient form a “two-way match” (P. 6, 1. 23) and, if not, delivery is not completed.

In addition, the Local2me.com reference describes two types of matching---a “complete match” or “partial matching.” With “partial matching,” the system assigns “default weights to each of the acceptance criteria” in a given subscriber’s profile, allowing the system determine indicate the degree to which subscribers form a match using point values. (P. 26, ll. 13-15). User’s can specify threshold values such that a communication is not delivered if the sender and recipient have a match score below the threshold value. (P. 26, ll. 11-22). The Local2me.com Reference further purports that the features disclosed can be extended to other electronic forums, such as online gaming forums (p. 29, ll. 14-32) and online chat forums. P. 30, ll. 23- p. 31, l. 5.

The Local2me.com Reference however does not describe an on-line dating service, nor does it disclose or suggest (a) providing an indication of the extent which chat participants in a particular chat (room) environment are collectively compatible with a user of the service, or (b) determining an optimal chat (room) environment whose participants are collectively most compatible with the user. The Local2me.com Reference also does not disclose or suggest facilitating subscriber participation in a virtual date.

U.S. 5,793,365 (the “Tang Reference”) discloses a system and method for improving workplace communication. A series of (presumably) networked desktops each belong to a workgroup member. Each desktop has a user interface display that includes an integrated chat room, allowing communication amongst the various members of the work group. Col. 8, ll. 60-66. The user interface also includes a “gallery window” which “comprises a plurality of visual representations of a selected set of workers.” Col. 5, ll. 13-14. For “each worker so represented, there is a visual indication of the availability of that worker.” Col. 3, l. 41-42. Thus, “a worker observing the gallery window” can “immediately assess the likelihood of a successful interaction with each of the other workers.” Col. 3, ll. 42-44. In sum, the Tang

Reference discloses selective communications with respective pictorially represented members of work group participants based upon whether a member is or is not available, that is, based on the members activity level. Col. 5, l. 55 – Col. 6, l. 10.

The Tang Reference, however, does not disclose an on-line dating service, nor does it disclose or suggest (a) providing an indication of the extent which chat participants in a particular chat (room) environment are collectively *compatible* with a user of the service, or (b) determining an optimal chat (room) environment whose participants are collectively most *compatible* with the user. The Tang Reference also does not disclose or suggest facilitating subscriber participation in a virtual date.

The “Chat Software” article dated march 1, 1998 (the “Luckevich Reference”) describes the software and architecture of conventional “chat” forums. The Luckevich Reference discloses that chat forums allow “people to join a conversation in a public meeting room during most any hour of the day.” P. 1. The Luckevich reference also teaches that chat forums may use either IRC-based software or Web-based chat software and provides a very general overview of both types of platforms. P. 1-2. In sum, the reference provides a general description of conventional technology underlying conventional chat forums.

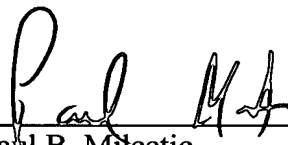
The Luckevich Reference does not, however, describe an on-line dating service, nor does it disclose or suggest (a) providing an indication of the extent which chat participants in a particular chat (room) environment are collectively compatible with a user of the service; or (b) determining an optimal chat (room) environment whose participants are collectively most compatible with the user. The Luckevich Reference also does not disclose or suggest facilitating subscriber participation in a virtual date.

Thus the UK Search Report fails to list a single prior art reference that teaches or suggests either (a) providing an indication of the compatibility level of a particular chat



(room) environment; (b) determining an optimal chat environment based on such compatibility; or (c) a virtual date feature. The applicants respectfully assert that the subject matter of independent claims 1, 15, 29, 33, 39 and 40, each of which incorporate either elements (a), (b) or (c), is therefore not rendered un-patentable by the Isao Reference, the Local2Me.com Reference, the Tang Reference or the Luckevich Reference, either alone or in combination. By extension, the same holds true for dependent claims 2-14, 16-28, 30-32, and 34-36. See MPEP 2143.03 (“[i]f an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending there-from is non-obvious”). Accordingly, the applicants respectfully submit that the pending claims, as amended, are in a condition for allowance.

Date: May 8, 2003

  
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BUCKET NO.: DATE-0003

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In Re Application of:**

**Jonathan Bricklin, Ronald N. Shostack**

**And Grady M. Werner**

**Serial No.: 09/826,230**

**Filing Date: April 4, 2001**

**For: Web Based Dating Service**

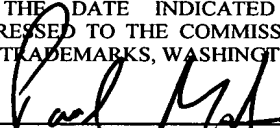
**Confirmation No.: 2482**

**Group Art Unit: 2152**

**Examiner: Not Yet Assigned**

DATE OF DEPOSIT: May 8, 2003

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TYPED NAME: Paul B. Milcetic  
REGISTRATION NO.: 46,261

Assistant Commissioner for Patents  
Washington DC 20231

Sir:

**STATEMENT REGARDING PRE-EXAMINATION SEARCH  
PURSUANT TO 37 C.F.R. 1.102(d)**

The search requirement set forth in MPEP §708.02(VIII) has been satisfied through the search by a foreign patent office. In particular, on September 19, 2002, the United Kingdom Patent Office issued a search report in connection with the UK counterpart to the present application. Four references were cited by the United Kingdom Patent Office as pertinent to the claims of the above-referenced application. These references are listed on the attached PTO-1449 and copies are enclosed herewith. Each of the four references, EP 1 222 911 A2 (the "Isao Reference"), PCT

WO 00/16208 (the "Local2me.com Reference"), U.S. 5,793,365 (the "Tang Reference"), and a "Chat Software" article dated March 1, 1998 (the "Luckevich Reference"), are discussed in relation to the pending claims as amended in the attached "Detailed Discussion of References Pursuant to 37 CFR §1.102(d).

Date: May 8, 2003



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Sheet 2 of 2

<b>Form PTO-1449 Modified</b>  List of Patent and Publications Cited by Applicant (Use several sheets if necessary)  U.S. Department of Commerce Patent and Trademark Office	Docket No. DATE-0003	Serial No. 09/826.230
	Applicant Jonathan Bricklin, et al.	
	Filing Date April 4, 2001	Group 2152

**U. S. PATENT DOCUMENTS**

Examiner Initial		Document No.	Date	Name	Class	Subclass
	2	5,793,365	08/11/98	Tang, et al.	345	329

**FOREIGN PATENT DOCUMENTS**

Examiner Initial		Document No.	Date	Country	Translation	
					YES	NO
	3	WO 00/16209	03/23/00	PCT		
	4	1 122 911 A2	08/08/01	EPO		

<b>EXAMINER</b>	<b>DATE CONSIDERED</b>
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Sheet 1 of 2

<b>Form PTO-1449 Modified</b>  List of Patent and Publications Cited by Applicant (Use several sheets if necessary)  U.S. Department of Commerce Patent and Trademark Office	Docket No. DATE-0003	Serial No. 09/826.230
	Applicant Jonathan Bricklin, et al.	
	Filing Date April 4, 2001	Group 2152

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

	1	Lickevich, D., "Chat Software," <i>List Web Hosts</i> , March 1, 1998, 5 pages

EXAMINER	DATE CONSIDERED
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Application No: GB 0130003.7  
Claims searched: 1-28

Examiner: Steven Gross  
Date of search: 19 September 2002

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:  
UK Cl (Ed.T):  
Int Cl (Ed.7):  
Other: Online: EPODOC, WPI, PAJ, Internet

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	EP 1122911 A2 (ISAO) See especially column 3 line 12 to column 4 line 32	1-41
X	WO 00/16209 A1 (LOCAL2ME.COM) See especially page 19 line 3 to page 33 line 11	1-41
X	US 5793365 A (TANG) See whole document	1-41
X	<a href="http://wdvl.internet.com/Software/Applications/Chat/">http://wdvl.internet.com/Software/Applications/Chat/</a> (1/3/1998)	37-41

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.



(12) **EUROPEAN PATENT APPLICATION**

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**08.08.2001 Bulletin 2001/32**

(51) Int Cl.7: **H04L 12/18**

(21) Application number: **01301039.2**

(22) Date of filing: **06.02.2001**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU**  
**MC NL PT SE TR**  
 Designated Extension States:  
**AL LT LV MK RO SI**

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- Sato, Masaomi, CSK Corporation  
 Tokyo 163-0227 (JP)

(30) Priority: **07.02.2000 JP 2000029537**

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**14, South Square**  
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(71) Applicant: **Isao Corporation**  
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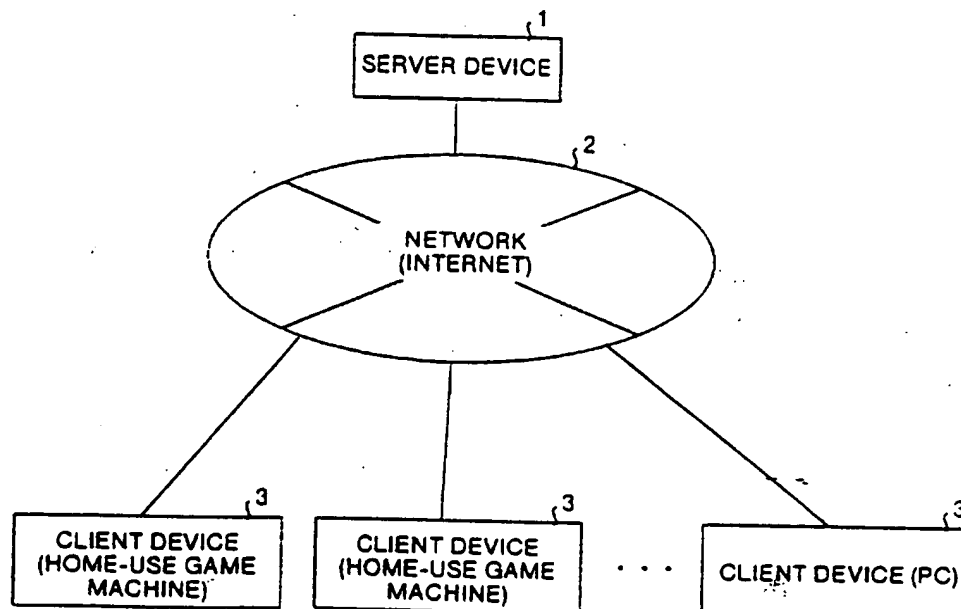
(72) Inventors:  
 • **Okawa, Isao, Isao Corporation**  
**Tokyo 107-6032 (JP)**

(54) **Method and device for computer communication**

(57) The communication system is intended to communicate by using client devices connected to the server device through the network. The server device comprises a matching unit which transmits the information

about users as candidates for participants in the chat to the client devices, and a chat processing unit which transmits information for starting the chat to the client devices of the selected users and the client device making the request, when start of chat is requested.

**FIG.1**



## Description

**[0001]** The present invention relates to a technology that allows a plurality of unspecified users to access a network and communicate easily with each other by utilizing a virtual dialog space or message distribution.

**[0002]** Along with the recent advancement in the Internet technology, a communication system for mutual communications by plural users by utilizing this Internet technology is widely spreading. General communication systems by the Internet include the WWW (World Wide Web) for looking up a Web page stored in a server device by using a lookup software (browser) of a client device, an electronic mail for distributing character data or image data electronically through a server device, and the chat for allowing plural users to write statements in a dialog style on a Web page stored in the server device.

**[0003]** However, such conventional communication systems are different from an actual communication because it is not real time or the degree of freedom of selecting a dialog partner is low, and cannot fully satisfy the users.

**[0004]** For example, in the WWW, generally, the Web page stored in the server device cannot be read unless the user downloads it. Therefore, it lacks in the real-time operation, and it is difficult to send information actively to a passive user.

**[0005]** In the electronic mail, the information can be sent somewhat actively to a specific user, but the mail data stored in the server device cannot be read unless the user downloads it. Therefore, same as in the Web page, it lacks in the real-time operation, and the activeness is not sufficient.

**[0006]** On the other hand, in the chat, the dialog statements entered through the client device is entered almost instantly in the Web page for chat (chat page) stored in the server device, and in this respect it is real time, and excellent as a virtual dialog space.

**[0007]** In the conventional chat, however, no dialog starts unless the user opens the chat page and enters a dialog statement. Therefore, an active communication cannot be made with a user not opening the chat page, or a user opening the chat page but hesitant about participating in the dialog. In this respect, the chat, like the Web page or electronic mail, has a common problem of difficulty in sending information actively to a passive user.

**[0008]** As other problem of these conventional communication systems, since each system is presented individually, the unity among the systems is poor.

**[0009]** When a user of the chat desires to talk individually to some of the plural users participating in the same chat, an electronic mail must be sent by separating starting up an electronic mail system, and smooth communication is not easy.

**[0010]** Accordingly, by enhancing the unity of the systems, communication systems for solving such problems have been proposed.

**[0011]** For example, Japanese Laid-open Patent No. 9-182046 discloses a system in which an interface control program is provided for uniformly controlling the modules of the individual communication tools in order to mutually link the communication tools such as electronic mail, viewphone or whiteboard.

**[0012]** In this system, the viewphone screen and whiteboard screen are displayed on a same screen. According to this system, the information commonly used in the individual communication tools is managed uniformly, and each communication tool can be utilized on the basis of this information.

**[0013]** Japanese Laid-open Patent No. 11-110179 discloses a technology in which the home page and chat page are disposed parallel on a same screen in order to mutually link the communication tools such as the home page, bulletin board, and chat.

**[0014]** In this system, the home page and chat page can be individually changed over to other contents.

**[0015]** Japanese Laid-open Patent No. 9-128343 discloses a technology in which users of a same information are automatically displayed on the screen, and communication between clients is established as desired in order to promote mutual communication of clients. In this system, the user information is accumulated as shared information, and each user can obtain the information about other user by referring to the accumulated information.

**[0016]** In such conventional systems, however, although the unity of communication systems may be somewhat improved, the intrinsic problems of the communication systems are still unsolved.

**[0017]** That is, for using the electronic mail or chat service, the user must open the page and send message, and hence the problem of difficult of sending information actively to a passive user is not solved at all.

**[0018]** For receiving the electronic mail, the user must download the mail data, and the problem of lack in real-time operation is still unsolved.

**[0019]** By contrast, in actual communications, it is possible to speak to a person not willing to talk, or communicate actively with a passive person. In most cases, by such active communications, some information hitherto not noticed may be obtained, or it is possible to encounter an unknown person incidentally.

**[0020]** Such incidental communication was quite impossible in the conventional communication systems, and it is very interesting for users.

**[0021]** It is therefore an object of the present invention to achieve a cyberspace for realizing communications among unspecified users, and in particular to build up a novel communication system for newly arousing the interest of users by realizing an incidental communication.

**[0022]** Further in actual communications, the dialog content is transmitted to the partner in real time by voice. Such real-time information transmission promotes smooth communications, and the trouble for starting up a communication is solved, and the user can be attract-



ed to the dialog.

**[0023]** It is an another object of the present invention to achieve a further smooth communication system by enhancing the real-time operation of dialog in the communication system.

**[0024]** In such communication system, when multiple users communicate, in order to build up more comfortable communication environment, it is desired to develop an environment for promoting mutual and appropriate communication among users, and also an environment for limiting inappropriate communication.

**[0025]** As an example of the former environment, the user accessing a Web page may be provided with the information of other users accessing the same Web page. In this case, others using having the same hobby or the like can be searched easily, and the communication is promoted.

**[0026]** Such information presenting system is realized in Japanese Laid-open Patent No. 9-128343 in which the individual information referring to the same information is displayed as an icon.

**[0027]** In this system, however, since the individual information is merely displayed on the screen, in a wide system participated by many users, the information may not be displayed completely on the screen, or if displayed, it is difficult to select a user corresponding to the hobby from too many users.

**[0028]** If referring merely to the same information, the hobby or interest is not always matched, and more directly it is preferred to select a user depending on the attribute such as the hobby or occupation of the user.

**[0029]** It is still another object of the present invention to achieve mutual and appropriate communication among users by allowing to select the information about the users easily on the basis of the attribute or the like.

**[0030]** Morepreferably, when users encountering by incidental communication become friendly, they are expected to communication with each other more frequently than with other users, and it is preferred to facilitate repeated communications.

**[0031]** However, in the system disclosed in Japanese Laid-open Patent No. 9-128343, general users and friendly users are not distinguished but are managed uniformly as users of same level. It is difficult to refer to the information of friendly users, and smooth communication is difficult.

**[0032]** It is still another object of the invention to realize smooth communication by the user information individually depending on the degree of friendliness.

**[0033]** On the other hand, as the system for limiting inappropriate communication, for example, an ID control system is considered, in which each user is provided with own ID, the own ID is specified when using the system. In such ID control system, if there is any user acting against law or ethics, the input of the ID given to this user is monitored, and it is banned to use the system by using this ID, so that inappropriate users may be excluded from the system.

**[0034]** In such ID control system, if the inappropriate user is excluded once, the same user can obtain a new ID by newly entering the system, and may do an evil act again, and it cannot be prevented sufficiently.

**[0035]** It is still another object of the present invention to limit inappropriate encounter of users by securely preventing use of the system by inappropriate users.

**[0036]** In the communication system according to one aspect of the present invention, the server device comprises a matching unit which selects a candidate user for participant in a chat according to a specified standard, and transmits the information about this user to a client device, and a chat processing unit which transmits specified information for starting a chat, when start of a chat is requested by specifying whole or part of users selected by the user selecting unit from one client device, to the client device of this specified user, and the one client device issuing this request. Furthermore, the client device comprises a display unit which displays the region for chat on the basis of the specified information when this information for starting a chat is transmitted from the server device.

**[0037]** Thus, when the user of the client device requests opening of a chat by designating a user selected by the matching unit, a chat room is opened for this user of the client device and the designated user. That is, each user can communicate with a designated user by opening a chat room actively. Therefore, same as in reality or more than in reality, real-time and dynamic communication can be made, and a new communication system capable of newly arousing the interest of the users can be built up.

**[0038]** In the communication system according to another aspect of the present invention, the server device comprises a matching unit which selects a candidate user for destination of transmission of message according to a specified standard, and transmits the information about this user to a client device, and a message processing unit which transmits the content of the message to the client device of the specified user, when message transmission is requested by specifying whole or part of users selected by the user selecting unit from one client device, and when the content of the message is specified. Furthermore, the client device comprises output means for issuing a specified output, when the content of the message is transmitted from the server device, so that at least its presence may be recognized by the user of the client device.

**[0039]** Thus, when the user of the client device sends a message by designating a use selected by the matching unit, the presence of the message and its content are immediately transmitted to this designated user. Therefore, the message can be transmitted in real time without having to wait until the recipient downloads as in the conventional electronic mail. Therefore, real-time and dynamic communication is made, and the trouble when starting up the communication can be eliminated, and a novel communication system capable of attracting

the user to the dialog can be built up.

**[0040]** Furthermore, the matching unit of the server device selects the user of other client device to which the same information is transmitted in the last place, concerning the information transmitted in the last place to each client device, among the users of the client devices of which connection is established at the present. Thus, for example, when a user is reading a Web page, other users reading the same Web page can be easily known. At the same time, for such users, the chat or PB message can be sent, and therefore hitherto unknown people can be encountered incidentally, and the circle of communication is further widened.

**[0041]** Furthermore, the matching unit of the server device selects the user preliminarily registered as having specific relation by the users of each client device, among the users of the client devices of which connection is established at the present. Thus, for example, other users encountered on the system can be registered in the friend list, and the partner of chat or message transmission can be selected by referring to this friend list, and it is easier to communicate with people sharing the same hobby, and appropriate encounter of users is promoted, and more friendly communication is possible.

**[0042]** Furthermore, the matching unit of the server device arrays or stratifies the selected users according to a specified standard. Thus, since the selected users are displayed as being arrayed and stratified, if multiple users are displayed, a specific user can be easily searched from these multiple users. Therefore, smoother communication is possible.

**[0043]** Furthermore, the server device comprises a validation processing unit which rejects request of a specific processing, when a specific processing is requested from one client device to other client device, if the user of the one client device has been already registered as having a specific relation by the user of the other client device. Thus, for example, by registering undesired partners preliminarily in the rejection list, if opening of chat or transmission of message is requested from the partner registered in the rejection list, such request can be rejected automatically. Therefore, inappropriate communication can be limited.

**[0044]** In the communication system according to still another aspect of the present invention, the server device comprises a profile storing unit which stores first identification information preliminarily given to the user for identifying the user in the network, second identification information preliminarily given to the user for identifying the user in the communication system, and permit information relating to approval or disapproval of use of the service to the user, being the information stored at least corresponding to the first identification information, and a validation processing unit which extracts the permit information corresponding to the first identification information from the profile storing unit when the first identification information and second

identification information are presented from the client device and use of specific service is requested, and judges approval or disapproval of presentation of service to the client device on the basis of this permit information and the request for use presented from the client device.

**[0045]** Thus, by judging approval or rejection of use of the system by using the first identification-information, the use of the system by a person prohibited to use this system can be securely excluded. That is, if such person obtains second identification information newly by entering the system again, the first identification information is invariable in the system, and hence such person can be excluded.

**[0046]** In the communication system according to still another aspect of the present invention, the server device comprises a profile storing unit which stores identification information preliminarily given to the user for identifying the user in the communication system, and an arbitrary handle name of the user, by relating to each other, and an ID converting unit which extracts the handle name corresponding to the identification information from the profile storing unit when the identification information is presented from one client device and use of specific service relating to other client device is requested, and converting the identification information depending on this handle name.

**[0047]** Thus, the identification information of each user is displayed to other users as handle name, and the identification information is not directly displayed. Therefore, unexpected exposure of identification information to other users can be prevented.

**[0048]** The server device according to still another aspect of the present invention comprises a matching unit which selects a candidate user for participant in a chat according to a specified standard, and transmits the information about this user to a client device, and a chat processing unit which transmits specified information for starting a chat, when start of a chat is requested by specifying whole or part of users selected by the user selecting unit from one client device, to the client device of this specified user, and the one client device issuing this request.

**[0049]** Thus, by building up a communication system by using this server device, the chat is opened dynamically according to the request from the client device, and real-time and dynamic communication is made, and a novel communication system arousing the interest of the users newly can be built up.

**[0050]** The server device according to still another aspect of the present invention comprises a matching unit which selects a candidate user for destination of transmission of message according to a specified standard, and transmits the information about this user to a client device, and a message processing unit which transmits the content of the message to the client device of the specified user, when message transmission is requested by specifying whole or part of users selected by the

user selecting unit from one client device, and when the content of the message is specified.

[0051] Thus, by building up a communication system by using this server device, the message is transmitted immediately according to the request from the client device, and real-time and dynamic communication is made. Hence, the trouble of starting up the communication can be eliminated, and a novel communication system capable of attracting the user to the dialog can be built up.

[0052] Furthermore, the matching unit selects the user of other client device to which the same information is transmitted in the last place, concerning the information transmitted in the last place to each client device, among the users of the client devices of which connection is established at the present. Thus, by building up a communication system by using this server device, for example, when a user is reading a Web page, other users reading the same Web page can be easily known. At the same time, for such users, the chat or PB message can be sent, and therefore hitherto unknown people can be encountered incidentally, and the circle of communication is further widened.

[0053] Furthermore, the matching unit selects the user preliminarily registered as having specific relation by the users of each client device, among the users of the client devices of which connection is established at the present. Thus, by building up a communication system by using this server device, for example, other users encountered on the system can be registered in the friend list, and the partner of chat or message transmission can be selected by referring to this friend list, and it is easier to communicate with people sharing the same hobby, and appropriate encounter of users is promoted, and more friendly communication is possible.

[0054] Furthermore, the matching unit is arrays or stratifies the selected users according to a specified standard. Thus, by building up a communication system by using this server device, since the selected users are displayed as being arrayed and stratified, if multiple users are displayed, a specific user can be easily searched from these multiple users. Therefore, smoother communication is possible.

[0055] Furthermore, the server device comprises a validation processing unit which rejects request of a specific processing, when a specific processing is requested from one client device to other client device, if the user of the one client device has been already registered as having a specific relation by the user of the other client device. Thus, by building up a communication system by using this server device, for example, by registering undesired partners preliminarily in the rejection list, if opening of chat or transmission of message is requested from the partner registered in the rejection list, such request can be rejected automatically. Therefore, inappropriate communication can be limited.

[0056] The server device according to still another aspect of the present invention comprises a profile storing

unit which stores first identification information preliminarily given to the user for identifying the user in the network, second identification information preliminarily given to the user for identifying the user in the communication system, and permit information relating to approval or disapproval of use of the service to the user, being the information stored at least corresponding to the first identification information, and a validation processing unit which extracts the permit information corresponding to the first identification information from the profile storing unit when the first identification information and second identification information are presented from the client device and use of specific service is requested, and judges approval or disapproval of presentation of service to the client device on the basis of this permit information and the request for use presented from the client device.

[0057] Thus, by building up a communication system by using this server device, therefore, by judging approval or rejection of use of the system by using the first identification information, the use of the system by a person prohibited to use this system can be securely excluded. That is, if such person obtains second identification information newly by entering the system again, the first identification information is invariable in the system, and hence such person can be excluded.

[0058] The server device according to still another aspect of the present invention comprises a profile storing unit which stores identification information preliminarily given to the user for identifying the user in the communication system, and an arbitrary handle name of the user, by relating to each other, and an ID converting unit which extracts the handle name corresponding to the identification information from the profile storing unit when the identification information is presented from one client device and use of specific service relating to other client device is requested, and converting the identification information depending on this handle name.

[0059] Thus, by building up a communication system by using this server device, the identification information of each user is displayed to other users as handle name, and the identification information is not directly displayed. Therefore, unexpected exposure of identification information to other users can be prevented.

[0060] In the communication method according to still another aspect of the present invention a server device executes a matching step of selecting a candidate user for participant in a chat according to a specified standard, and transmitting the information about this user to a client device, the server device executes a chat processing step of transmitting specified information for starting a chat, when start of a chat is requested by specifying whole or part of users selected by the user selecting unit from one client device, to the client device of this specified user, and the one client device issuing this request, and the client device executes a display step of displaying the region for chat on the basis of the speci-

fied information when this information for starting a chat is transmitted from the server device.

[0061] Thus, by executing each procedure in the communication system, the chat is opened dynamically according to the request from the client device, and real-time and dynamic communication is made, and a novel communication system arousing the interest of the users newly can be built up.

[0062] In the communication method according to still another aspect of the present invention a server device executes a matching step of selecting a candidate user for destination of transmission of message according to a specified standard, and transmitting the information about this user to a client device, the server device execute a message processing step of transmitting the content of the message to the client device of the specified user, when message transmission is requested by specifying whole or part of users selected by the user selecting unit from one client device, and when the content of the message is specified, and the client device executes an output step of issuing a specified output, when the content of the message is transmitted from the server device, so that at least its presence may be recognized by the user of the client device.

[0063] Thus, by executing each procedure in the communication system, the message is transmitted immediately according to the request from the client device, and real-time and dynamic communication is made. Hence, the trouble of starting up the communication can be eliminated, and a novel communication system capable of attracting the user to the dialog can be built up.

[0064] In the communication method according to still another aspect of the present invention a server device executes a profile storing step of storing first identification information preliminarily given to the user for identifying the user in the network, second identification information preliminarily given to the user for identifying the user in the communication system, and permit information relating to approval or disapproval of use of the service to the user, being the information stored at least corresponding to the first identification information, and the server device executes a validation processing step of extracting the permit information corresponding to the first identification information from the profile storing unit when the first identification information and second identification information are presented from the client device and use of specific service is requested, and judging approval or disapproval of presentation of service to the client device on the basis of this permit information and the request for use presented from the client device.

[0065] Thus, by executing each procedure in the communication system, therefore, by judging approval or rejection of use of the system by using the first identification information, the use of the system by a person prohibited to use this system can be securely excluded. That is, if such person obtains second identification information newly by entering the system again, the first

identification information is invariable in the system, and hence such person can be excluded.

[0066] In the communication method according to still another aspect of the present invention a server device executes a profile storing step of storing identification information preliminarily given to the user for identifying the user in the communication system, and an arbitrary handle name of the user, by relating to each other, and the server device executes an ID converting procedure of extracting the handle name corresponding to the identification information from the profile storing unit when the identification information is presented from one client device and use of specific service relating to other client device is requested, and converting the identification information depending on this handle name.

[0067] Thus, by executing each procedure in the communication system, the identification information of each user is displayed to other users as handle name, and the identification information is not directly displayed. Therefore, unexpected exposure of identification information to other users can be prevented.

[0068] Moreover, the computer-readable recording medium according to still another aspect of the present invention stores a computer program which when executed realizes the method according to the present invention on a computer.

[0069] Another aspect of the invention provides a computer program comprising program code means for executing, on a programmed computer, any of the steps of the invention.

[0070] The invention will be further described by way of example with reference to the accompanying drawings, in which:-

[0071] Fig. 1 is a block diagram of an entire communication system according to an embodiment of the invention.

[0072] Fig. 2 is a block diagram of a server device.

[0073] Fig. 3 is a block diagram of a client device.

[0074] Fig. 4 shows examples of pages displayed in the monitor of each client in various services.

[0075] Fig. 5 is a flowchart showing the issuing process of communication ID.

[0076] Fig. 6 is a flowchart showing the log-on process.

[0077] Fig. 7 is a flowchart showing display process of online

[0078] URL locate page P2.

[0079] Fig. 8 is a flowchart showing create and update process of online URL locate list by matching unit.

[0080] Fig. 9 is a flowchart showing create and update process of WWW URL locate list.

[0081] Fig. 10 is a flowchart showing create and update process of friend list and rejection list.

[0082] Fig. 11 is a flowchart showing opening process of friend chat.

[0083] Fig. 12 is a flowchart showing execution process of PB message.

[0084] Fig. 13 shows an example of composition of connection state list.

[0085] Fig. 14 shows an example of composition of URL locate source list.

[0086] Fig. 15 shows an example of composition of online URL locate list.

[0087] Fig. 16 shows an example of composition of WWW URL locate list.

[0088] Fig. 17 shows an example of friend list.

[0089] Fig. 18A and Fig. 18B show a WWW URL locate list displayed in a radar form.

[0090] Fig. 19 shows an example of display of chat page.

[0091] Fig. 20A and Fig. 20B show examples of display of inquiry page and PB message page.

[0092] Preferred embodiment of the communication system of the invention are described in detail below while referring to the accompanying drawings. It must be noted, however, that the invention is not limited to this embodiment alone.

[0093] Fig. 1 is a block diagram of an entire communication system according to an embodiment of the invention, Fig. 2 is a block diagram of a server device, and Fig. 3 is a block diagram of a client device.

[0094] The communication system according to the embodiment (this system) is composed of, as shown in Fig. 1, a server device 1 and plural client devices 3, which are connected to each other so as to communicate through a network 2 such as the Internet. The outline of the service presented by this system is explained, and then the configuration and processing of the system are described in detail.

#### (Outline of service)

[0095] In this system, the user of each client device 3 can use various services in order to communicate with other users.

[0096] Main services presented by this system include the WWW, chat, and private message (PB message). As auxiliary services for executing these services smoothly, for example, the profile reference, online URL locate list, WWW URL locate list, friend list, and rejection list can be utilized. These services can be used either individually, or plural services can be used simultaneously or in linkage on a same screen.

[0097] Of the main services, the WWW is a service for allowing to read the Web page stored in the service inside or outside of this system by using the client device 3, basically same as in the conventional manner.

[0098] The chat is, as known hitherto, a service for offering mutual dialog of users in a virtual meeting place (chat room). In particular, in this system, in addition to the conventional function of general chat, a chat room can be opened actively to other user.

[0099] The PB message is transmission of a message individually by a user to other user. In particular, as compared with the conventional electronic mail, it is sent in

real time, and a message can be transmitted actively to other user.

[0100] Of the auxiliary services, the profile reference is a service allowing the user of each client device 3 to register the own profile in the server device 1 and other user to refer to this profile as required. Each user, by referring to the profile, can make up the friend list or rejection list as mentioned later.

[0101] The online URL locate list is a service for informing each user of the presence of other online users in the system.

[0102] The WWW URL locate list is a service for informing each user of the WWW service of presence of other users accessing the same Web page as the user.

[0103] Each user, by referring to the online URL locate list or WWW URL locate list, can easily search other users sharing the same hobby, and make up the friend list or rejection list as mentioned below.

[0104] The friend list is a service for allowing each user to register other users as own friends in the server device 1. This friend list can be referred to when selecting the destination of transmission in the chat service or PB message service, and the circle of communication is widened, and the selection operation is easier.

[0105] The rejection list is a service for allowing each user to register other users as the users not desired to communicate with (rejectees) in the server device 1. If chat is requested or PB message is sent from a rejectee registered in this rejection list, such communication request can be rejected automatically.

#### (System composition: Server device)

[0106] The composition of the system for presenting such services is explained.

[0107] First, the server device 1 is explained. In Fig. 2, the server device 1 mainly comprises a request execution unit 10, a connection monitor unit 11, an ID converter 12, a matching unit 13, plural data base systems, and a communication interface (communication IF) 14, and each unit is connected so as to communicate with each other through a communication path 15 such as network and bus. The server device 1 is further connected to communicate with the network 2 through router or other communication device and exclusive line not shown in the drawing.

[0108] Of these constituent elements of the server device 1, the request execution unit 10 is means for executing the request for various services from the client device 3. This request execution unit 10 includes a validation processing unit 16 for processing validation at the time of log-in by the user into this system or judging approval or rejection of user of the service, a WWW processing unit 17 for processing about the WWW, a chat processing unit 18 for processing about the chat, and a PB message processing unit 19 for processing about the PB message.

[0109] The connection monitor unit 11 is means for

monitoring the connection state of each client device 3. More specifically, it monitors the connection establishment state of each client device 3, and the URL (Uniform Resource Locator) of the Web page last transmitted to each client device 3, at specific intervals. The connection establishment state acquired by this monitoring is temporarily stored as the connection state list, and the acquired URL as the URL locate source list, each in the connection information storage unit 20.

[0110] Fig. 13 shows an example of composition of connection statelist. In Fig. 13, the connection state list is composed of the user ID of each user, and the corresponding connection state (online or offline) of each user. This connection state can be acquired from the contracted ISP mentioned later.

[0111] Fig. 14 shows an example of composition of URL locate source list. In Fig. 14, the URL locate source list is composed of the user ID of each user and the corresponding URL of the Web past last sent to each user. The URL of the Web page stored in the server device 1 outside of this system can be acquired from the outside server device 1 by permission of the outside server device 1.

[0112] The ID converter 12 converts the user ID or CommID mentioned later and the handle name mentioned later, mutually as required. By this conversion, only the handle name of other user is displayed to each user, and unexpected exposure of user ID or CommID can be prevented.

[0113] The matching unit 13 creates and updates the online URL locate list, WWW URL locate list, friend list, and rejection list, on the basis of the information acquired from the parts of the server device 1. Among them, the online URL locate list and WWW URL locate list are created and updated on the basis of the URL locate source list stored in the connection information storage unit 20. The friend list and rejection list are created and updated on the basis of the friend information and rejectee information stored in a profile DB 28 described later. The specific content of each list is explained later. The created lists are temporarily stored in the matching information storage unit 21. The matching unit 13 also has a function of arraying and stratifying each list so as to be read easily by the user, and this point is explained afterwards.

[0114] Next, each database system of the server device 1 is explained. The database system is composed of a database (DB) for storing various data, and a database access unit (DB access unit) as DBMS (database management system) for managing the database such as writing and reading of information (information operation) in the DB.

[0115] Specifically, a WWW DB 22 for storing plural Web pages, and a WWW DB access unit 23 for operating information in the WWW DB 22 are provided. The Web pages include an initial page of this system, a base page for user information reference, a base page for chat room. These Web pages are prepared in HTML

(Hypertext Markup Language) source codes, preliminarily or as required, by the administrator of this system or by the users, and stored in the WWW DB 22. The Web pages are not limited to so-called static pages, but may be also composed as dynamic pages including script codes described in Perl or the like or Java script codes, as required, in order to achieve the CGI (Common Gateway Interface). These script codes are interpreted and executed in the WWW processing unit 17.

[0116] The database system further comprises a chat DB 24 for storing the information about the chat, and a chat DB access unit 25 for operating information about the chat DB 24. Herein, the information about the chat includes the status information showing the opening state of the chat room, the room ID provided in each chat room, and the room key necessary for joining the chat room, and they are mutually related and stored in the chat DB 24. Such chat information is created and updated dynamically depending on the requirement.

[0117] The database system still more comprises a PB message DB 27 for storing the information about the PB message, and a PB message DB access unit 27 for operating the information about the PB message DB 26. The information about the PB message includes, for example, the source and destination of transmission and content of the PB message transmitted through the client device 3, and presence or absence of reception of this message, and they are mutually related and stored in the PB message DB 26. Such PB message information is also created and updated dynamically depending on the requirement.

[0118] Moreover, a profile DB 28 for storing user information, and a profile DB access unit 29 for operating information about the profile DB 28 are provided. The user information include the user ID, password, communication ID (CommID), nickname (handle name) of each user in this system, profile of each user, friend information, rejection information, and banned user list.

[0119] Among them, the user ID is the identification information (first identification information) provided in order to identify each user, given to the user from the ISP (Internet Service Provider) when the user contracts with the ISP for subscribing the service of connection of the own client device 3 to the Internet. At this time, each user registers an arbitrary password known to the user and the ISP only. As the ISP, the ISP in contract relation with this system for presenting specified information (contracted ISP) is selected.

[0120] The CommID is the identification information (second identification information) for identifying the user in the system, given to the user from the server device 1 when each user is enrolled in this system.

[0121] The profile of each user includes an arbitrary handle name which is the own nickname in the system, sex, age, address, field of interest, hobby, blood type, URL of own home page if any, and other information relating to the attribute of each user. In particular, this profile is not limited to the text data alone, but may include

binary data such as video and audio. The profile can be registered at an arbitrary timing after each user is enrolled in this system, and may be edited as required.

[0122] The friend information is the information for specifying other users registered as friends by each user. The rejection information is the information for specifying the users registered as rejectees by each user. Specifically, the friend information and rejection information are composed by using the user ID.

[0123] The banned user list is a list for specifying banned users in order to prohibit the users (banned users) from utilizing this system, if there are users acting evil in the system against the law or ethics, users to be excluded from this system due to other reasons. The banned user list is composed by using the user ID of the banned user, and may be stored at an arbitrary timing by the administrator of this system.

[0124] The constituent elements of the server device 1 are described so far, but the illustrated elements are only conceptual in function and are not always composed physically as shown in the drawings.

[0125] For example, whole or part of processing functions of the server device 1 may be realized by a CPU (central processing unit) or a program interpreted and executed by this CPU, or may be also realized as hardware by wired logic.

[0126] The connection information storage unit 20 and matching information storage unit 21 may be composed by using arbitrary write-once memory device, such as RAM (random access memory) or hard disk (HD).

[0127] Further, specific forms of dispersion and integration of the server device 1 are not limited to the illustrated examples alone, but whole or part may be composed by composed by dispersing and integrating functionally or physically, in arbitrary units depending on various loads. For example, the portion relating to presentation function of the Web page is separately composed as WWW server, the portion relating to the chat function as chat server, the portion relating to the PB message function as message server (mail server), and the portion relating to the information management function of the user of the client 3 as database server, and these server groups may be joined together to realize the server device 1. When the server device 1 is thus distributed, each component can be connected to communicate with an arbitrary network such as LAN (Local Area Network) and WAN (Wide Area Network). Actually, as the constituent functions of the server device 1, further, firewall server and DNS (Domain Name System) server functions are added, which are composed same as in the conventional system and are not specifically described herein.

[0128] The composition of the client device 3 will now be explained. As shown in Fig. 3, the client device 3 mainly comprises processing unit 30, HD 31, RAM 32, ROM (read only memory) 33, input and output interface (input and output IF) 34, input device 35, output device

36, and communication IF 37, and these parts are connected so as to communicate data by way of a bus 38. This client device 3 is realized, for example, by a personal computer, or a home-use or professional-use game machine having part of functions specialized for game.

[0129] The processing unit 30 of the client device 3 includes HTML interpretation unit 39 for interpreting HTML sentences, PB message transmitting and receiving unit 40 for processing about transmission and reception of PB message, and audio processing unit 41 for processing the audio. The processing by these parts is described later.

[0130] These parts of the processing unit 30 may be realized, either entirely or partially, by a CPU or a program interpreted and executed by the CPU. That is, in the HD 31 and ROM 33, a computer program for command the CPU in cooperation with the OS (operating system) and processing is stored. This computer program is executed when loaded into the RAM 32, and each processing part is composed by cooperating with the CPU. However, this computer program may be stored also in an application program server connected to the client device 3 through an arbitrary network, and whole or part of it may be downloaded as required. Alternatively, whole or arbitrary part of the processing units may be realized by hardware by wired logic or the like.

[0131] On the other hand, as the input device 35, keyboard, mouse or microphone may be used. A monitor mentioned later may also realizing a pointing device function in cooperation with the mouse. Besides, when the client device 3 is realized as a game machine, as the input device 35, instead of the keyboard or mouse, the controller for the game machine may be used. As the output device 36, the monitor (including the household television) and speaker may be used.

[0132] Thus composed client device 3 is connected to the network 2 through modem, TA, router, other communication device and telephone line, or an exclusive line, and can access the server device 1 according to the specified communication protocol (for example, TCP/IP Internet protocol).

[0133] The network for connecting the server device 1 and client device 3 is not limited to the Internet, but other desired network may be utilized.

[0134] Specific processing of services presented by this system having such composition will now be explained. Fig. 4 shows examples of page displayed on the monitor of each client device 3 in various services. As shown in Fig. 4, pages displayed on the monitor include the initial page P1 displayed right after log-on, online URL locate page P2 for locating the online URL, WWW page P3 for locating the WWW or WWW URL, chat page P4 for chatting, and PB message page P5 for transmitting and receiving PB message.

[0135] Although not shown, further, issue page for issuing CommID, and registration page for registering the



profile are displayed. These pages can be transferred in an arbitrary order. Fig. 4 shows only examples of pages, and actually these pages may be overlaid on a same screen, or other pages may be displayed. In particular, the chat page P4 and PB message page P5 may be displayed on a same screen at the same time, or the online URL locate page P2 and the WWW page P3 may be displayed on a same screen at the same time.

[0136] Contents of services are individually explained below, but these services may be done in series. The sequence of services is not particularly limited to the sequence of explanation unless otherwise noted, and may be done in an arbitrary order.

[0137] Now, to begin with, processing for validation of user is explained.

[0138] To begin with, when the user subscribes the use of the line with the contracted ISP, the user ID is issued from the contracted ISP to the user. At the same time, the user registers an arbitrary password. The issue of user ID and registration of password are same as in the conventional manner. The user ID and password are presented from the contracted ISP into the server device 1 in this system, and related with each other and stored in the profile DB 28 through the profile DB access unit 29 (hereinafter, the description about the access units 23, 25, 27, 29 when operating information in the DB 22, 24, 26, 28 is omitted). The meaning of the user ID in this system is explained later.

[0139] When the user accesses the server device 1 for the first time, the enrollment is contracted with the server device 1 to enroll in this system. At this time, CommID is given to the user from the server device 1.

[0140] Fig. 5 is a flowchart showing the issue process of communication ID. In Fig. 5, when the user of the client device 3 requests issue of CommID through the input device 35, this issue request is sent to the server device 1 (step S5-1). Receiving this request, the server device 1 transmits an input page for entering necessary information for setting the CommID to the client device 3 (step S5-2).

[0141] Specifically, from the client device 3, the URL showing the location of the client device 3 is transmitted together with the CommID issue request command, and this issue request is transferred to the validation processing unit 16. By processing at the validation processing unit 16, the HTML source code of input page is extracted from the WWW DB 22 through the WWW DB access unit 23, and this HTML source code is transmitted to the client terminal device in the HTTP (Hypertext Transfer Protocol). At this time, the CGI and others included in the HTML source code are executed.

[0142] Receiving this transmission, the client device 3 interprets the HTML source code in the HTML interpretation unit 39, and the input page is displayed in the monitor according to the result of this interpretation (step S5-3). The input page, not shown, may be arbitrarily created.

[0143] In these processes of extraction, generation,

transmission and interpretation of HTML source codes are same in the following processes unless otherwise noted, and individual explanations are omitted.

[0144] The input page thus displayed in the monitor urges input of at least user ID and password. When they are entered in the input page, they are transmitted to the server device 1 (steps S5-4, S5-5).

[0145] In the validation processing unit 16 of the server device 1, on the basis of the transmitted user ID and password, it is determined whether or not to give CommID by referring to the profile DB 28 (steps S5-6 to S5-8).

[0146] Herein, provision with CommID is refused, for example, when the transmitted user ID and password are not stored in the profile DB 28, or CommID has been already issued to the transmitted user ID. In such a case, a corresponding error page is extracted from the WWW DB 22, and is transmitted to the client device 3 (step S5-9). This error page is displayed in the monitor of the client device 3 (steps S5-10, S5-11).

[0147] On the other hand, if there is no reason of refusal of provision with CommID at step S5-8, the CommID is generated at random in the validation processing unit 16. This CommID is stored in the profile DB 28 in relation to the already transmitted user ID or the like (step S5-12). At the same time, a notice page for noticing this CommID is generated, and transmitted and displayed in the client device 3 (steps S5-13, S5-10, S5-11). This notice page is generated as the original Web page is extracted from the WWW DB 22, and a new Web page is created by adding the CommID and others to this page. As a result, the CommID is noticed to the user.

[0148] The user thus receiving the issue of CommID can log on into this system by using this CommID. Fig. 6 is a flowchart showing the log-on procedure. In Fig. 6, when log-on request is transmitted from the user (step S6-1), in the server device 1, the log-on page is extracted from the WWW DB 22 by the processing of the validation processing unit 16, and this log-on page is transmitted and displayed in the client device 3 (steps S6-2, S6-3). The log-on page can be created arbitrarily and is not shown herein.

[0149] In this log-on page, the user ID, password and CommID are entered and transmitted by the user (steps S6-4, S6-5). In second and subsequent inputs, for example, by storing the user ID entered previously at the time of log-on in the HD 31 of the client device 3 as Cookie, the same procedure can be omitted by reading the environmental variable transmitted through this Cookie at the server device 1 side.

[0150] In the validation processing unit 16 of the server device 1, on the basis of the transmitted user ID, password, and CommID, it is determined whether or not to permit log-on by referring to the profile DB 28 (steps S6-7, S6-8).

[0151] Log-on is refused, for example, when any one of the entered user ID, password, and CommID does



not coincide with the content stored in the profile DB 28, or when the entered user ID is found in the banned user list of the profile DB 28. In such a case, an error page is transmitted to the client device 3, and displayed in the monitor (step S6-9, S6-10).

[0152] In such validation process, by judging permission of use of the system by using the banned user list composed of the user ID, the banned users can be excluded securely. If the banned user gets a new CommID by enrolling again into the system, since the user ID is invariable, the banned user can be excluded. Further, if necessary, the name and address of the user presented when contracting with the ISP may be registered in the banned user list, and the banned user can be judged on the basis of such address and other data. In such a case, if the banned user contracts with the ISP again to obtain a new user ID, such banned user can be excluded.

[0153] On the other hand, if there is no reason for refusing log-on at step S6-8, the validation processing unit 16 issues a session ID (step S6-12), and the initial page P1 is extracted from the WWW DB 22 (step S6-13). The session ID and initial page P1 are transmitted to the client device 3, and the initial page P1 is displayed in the monitor (step S6-11).

[0154] The initial page P1 may be composed of arbitrary content, and by omitting the initial page P1, a page for other service described below may be displayed. Thus, the display page may be selected automatically, for example, by storing an arbitrary URL in the Cookie stored in the HD 31 of the client device 3, and reading the URL from this Cookie right after log-on.

[0155] The session ID issued at step S6-12 is used continuously until logging out of this system, and it is transmitted whenever requesting something from the client device 3 to the server device 1, and is used for confirming the validation state of the client 3. Hereinafter, processing of transmission and reception of the session ID is omitted.

[0156] From the initial page P1 thus displayed or from other page in this system, it can be transferred to registration page. In this registration page, each user can register the own profile. Specifically, when registration is requested from the client device 3, by the processing of the validation processing unit 16 of the server device 1, the registration page is extracted from the WWW DB 22, and transmitted and displayed in the client device 3. This registration page can be created arbitrarily, and is not shown herein.

[0157] When each user enters the own profile in the registration page, this profile is transmitted to the server device 1 together with the user ID. The user ID and profile are related with each other and stored in the profile DB 28. In the registration of the profile, aside from text data, audio data or video data can be registered, and, for example, the audio data can be registered in a format of AIFF (audio interchange file format), and the video data in a format of JPEG (Joint Photographic Experts Group). Thus registered profile can be called and re-

ferred to freely by each user, by selecting the handle name displayed in each list while displaying the online URL locate list, WWW URL locate list, friend list, or rejection list as described below.

5 [0158] From this registration page or other page in this system, it is possible to transfer to the online URL locate page P2. Fig. 7 is a flowchart showing the display process of online URL locate page P2. In this page, the online URL locate list is displayed. This online URL locate  
10 list is created and updated by the matching unit 13, and is stored in the matching information storage unit 21. As shown in Fig. 7, when requested from the client unit 3 (step S7-1), the online URL locate list stored in the matching information storage unit 21 at this moment is  
15 extracted (step S7-2), and the online URL locate page P2 is created by using this list (step S7-3), and is transmitted and displayed in the client device 3 (steps S7-4, S7-5).

[0159] The online URL locate list used herein is created and updated automatically at a specific interval regardless of presence or absence of request from the client device 3. Fig. 8 is a flowchart showing the creating and updating process of online URL locate list by the matching unit 13. In Fig. 8, first, the URL locate source  
20 list stored in the connection information storage unit 20 at this moment is extracted (step S8-1), and the user ID is converted to the handle name by the processing of the ID converter 12 in this list (step S8-2). Such conversion is intended to use the handle name only of the user, instead of the user ID, in the online URL list, so that the user ID may not be known to other users.

[0160] Thus converted handle names are arrayed according to a specified standard by the processing in the matching unit 13 (step S8-3). The standard of arraying, for example, conforms to the sequence of establishment of log-on. The data of log-on time necessary at this time can be obtained, for example, by storing the connection establishment time in the connection state list, and referring to it.

40 [0161] If the arrayed handle names exceed the monitor display capacity (for example, 100 to 300 persons), some of handle names may be deleted according to a prescribed standard. The matching unit 13 stratifies the selected handle handles by a specified number each according to the arraying sequence (grouping).

45 [0162] The online URL locate list thus updated is stored in the matching information storage unit 21 (step S8-4).

[0163] Fig. 15 shows an example of composition of online URL locate list. In Fig. 15, images of plural folders F1 to F3 are disposed above and beneath the online URL locate list, and folder names FN1 to FN3 are shown at the side of each image. Each folder is created by stratification by the matching unit 13, and handle names of a specified number (for example, 50 persons) are related to each other. By selecting from arbitrary folders F1 to F3 (folder F3 in the drawing) by clicking through the input device 35, plural handle names HN related to the

folders F1 to F3 are displayed. Of course, the images and layout are mere examples, and circular, stellar or other arbitrary images may be used, and the same function as these folders may be achieved.

[0164] The standard of arraying and stratifying by the matching unit 13 may also conform to other arbitrary standard aside from the log-on sequence as mentioned above. For example, by referring to the profile DB 28, the hobby, age, address and others belonging to the handle names can be extracted, and the handle names are can be grouped according to the hobby or the like. In this case, the users can be easily searched by referring to the attribute.

[0165] From thus displayed online URL locate list or other page in this system, it is possible to transfer to the WWW. The WWW may be handled same as general WWW through the WWW processing unit 17.

[0166] In this WWW, the WWW URL list can be displayed automatically, or by a specific instruction of the user. Fig. 9 is a flowchart showing the creating and updating process of the WWW URL locate list. This WWW URL locate list is displayed by acquiring the necessary information from the URL locate source list of the connection information storage unit 20 on the basis of the URL of the Web page transmitted last to each client device 3. That is, when transmission of WWW URL locate list is requested together with the user ID of each client device 3 (step S9-1), the URL locate source list stored in the matching information storage unit 21 at this moment is extracted (step S9-2). On the basis of the user ID of the client device 3 sending the transmission request, the URL of the Web page last transmitted to the client device 3 is acquired from the URL locate source list (step S9-3).

[0167] On the basis of this URL, the user ID of other user reading the same Web page is extracted from the URL locate source list (step S9-4). This user ID is converted into a handle name by the processing of the ID converter 12 (step S9-5). Thus converted handle names are arrayed and stratified according to a specific standard by the processing of the matching unit 13 (step S9-6), and transmitted and displayed in the client device 3 as the WWW URL locate list (steps S9-7 to S9-9).

[0168] Fig. 16 shows an example of composition of WWW URL locate list. In Fig. 16, the WWW URL locate list is composed nearly same as the online URL locate list in Fig. 15.

[0169] As the arraying and stratifying standard of the WWW URL locate list, same as in the case of the online URL locate list, other arbitrary-standard may be also applied. In particular, when the handle names to be displayed exceed the monitor display capacity, it is preferred to select the handle names to be displayed by using a proper standard so as to be searched easier to the user. For example, it is preferred to display preferentially the handle names of the users registered as friends in the profile DB 28, or handle names of users coinciding with the profile registered in the profile DB

28. Alternatively, handle names of users registered as rejectees in the profile DB 28 may be excluded. It is also possible to select merely at random.

[0170] Further, the WWW URL locate list may be displayed in a method enhanced in visible recognition. Fig. 18A and Fig. 18B show an example of the WWW URL locate list displayed like a radar. In Fig. 18A and Fig. 18B, the WWW URL locate list is displayed as a circular region 40 on the monitor, and in this circular region 40, an index line 41 of a length corresponding to the radius of the circle is indicated, starting from the origin of the circle center 42. This index line 41 is divided into plural (three in this figure) line segment regions 43 to 45 according to the function.

[0171] The middle line segment region 44 is a region for showing the number of users connected to the same URL as the URL of the Web page currently viewed by the user. The line segment region 43 closest to the circle center 42 is a region for showing the number of users connected to the URL one layer higher than the URL of the Web page currently viewed by the user, and the line segment region 45 remotest from the circle center 42 is a region for showing the number of users connected to the URL one layer lower than the URL of the Web page currently viewed by the user. For example, if the user is reading the Web page URL "http://www.123.com/456/", the line segment region 43 shows the number of users of "http://www.123.com", the line segment region 44, "http://www.123.com/456/", and the line segment 45, "http://www.123.com/456/789/", respectively.

[0172] The line segment regions 43 to 44 display light spots 45 in the number corresponding to the number of users. For example, the index line 41 in Fig. 18A shows the initial state positioned in the 12 o'clock direction, and the line segment regions 43 to 45 show multiple light spots 46 individually. This index line 41 rotates only by a specified angle corresponding to the lapse of time, and displays similarly upon every revolution. The light spot 46 displayed at each rotation position is lit continuously until the index line 41 reaches this position next time. For example, in Fig. 18B, the index line 41 shows the state of rotation in the 3 o'clock direction, and multiple light spots 46 are displayed until rotating to this direction.

[0173] In thus displayed WWW URL locate list, if any one of the line segment regions 43 to 45 is selected by clicking, the other users connecting to the URL displayed by the selected one of the line segments 43 to 45 are displayed again as the WWW URL locate list as shown in Fig. 16.

[0174] When using such radar-like WWW URL locate list, each user knows the number of users viewing the URL of the same Web page or the URL of neighboring layers at a glance, and, in particular, the change in the number of users with the passing of the time can be known visually.

[0175] The process of creating and updating the friend list or rejection list is explained. Fig. 10 shows a

flowchart of creating and updating process of friend list or rejection list. These lists can be created and updated by using the online URL locate list or WWW URL locate list. Specifically, while the friend list or rejection list is displayed on the monitor, the user selects a desired handle name in the list, and instructs to "Add to the friend list" or "Add to the rejection list" by the pull-down menu or the like. As a result, the user ID of the user making this instruction, selected handle name, and the type information distinguishing the friend list or rejection list are transmitted to the server device 1 (step S10-1).

[0176] In the server device 1, by the processing of the validation processing unit 16, the user ID of the other user corresponding to the handle name transmitted from the client device 3 is extracted from the profile DB 28 (step S10-2). This extracted user ID is related to the user ID transmitted from the client device 3, and registered in the profile DB 28 as friend or rejectee depending on the type information (step S10-3).

[0177] At this time, the condition may be further added that registration as friend in the friend list is possible only when the same user is not rejected by the other user selected as friend. That is, at the time of registration of friend, the user ID of the person registered as rejectee by other user selected as friend is extracted from the profile DB 28, and when the user ID of the user instructed for registration coincides with this user ID, its registration is rejected. This process can be done in the validation processing unit 16.

[0178] Afterwards, when transmission of friend list or rejection list is requested from the client device 3, the user ID of the user registered as friend or rejectee in the profile DB 28 is extracted by the matching unit 13 (step S10-4). The connection state of the user ID thus extracted is extracted from the connection state lists (step S10-5). The user ID extracted at step S10-4 is converted into a handle name by the ID converter 12 (step S10-6), and the handle name is arrayed and stratified according to a prescribed standard in the matching unit 13 (step S10-7).

[0179] To the handle name thus arrayed, by adding the connection state extracted at step S10-5, the friend list or rejection list is created or updated, and is stored in the matching information storage unit 21 (step S10-8). The friend list or rejection list thus compiled is called from this matching information storage unit 21 when transmission is requested at an arbitrary timing from the client device 3, and is displayed on the monitor of the client device 3.

[0180] Fig. 17 shows an example of friend list. In this friend list, handle names of users registered as friends are stratified in folders. At the side of the handle name, status mark M1 to M3 showing the connection state of the client device 3 corresponding to the handle name is shown, and it is known to be online when the status marks M1 to M3 are lit, and offline when put out (in Fig. 17 only M1 and M2 are lit). Such display method of connection state is not specified.

[0181] The chat is explained. The chat usable in this system includes the between users displayed in the online URL locate list or WWW URL locate list (URL chat), the chat between users displayed in the friend list (friend chat), and the chat between unspecified users not relating to the list (unspecified chat).

[0182] The unspecified chat is, basically, same as in the conventional chat. That is, by selecting an already open chat room by designating the URL or designating the menu, and the user participates in the chat room to make a dialog.

[0183] The URL chat and friend chat is done in the same manner except that the selection method of chat partner is different. That is, in the case of URL chat, a chat partner can be selected from the online URL locate list or WWW URL locate list, and in the case of friend chat, a chat partner can be selected from the friend list.

[0184] An example of friend chat is explained. Fig. 11 is a flowchart of opening process of friend chat. Supposing a friend list is displayed on the monitor of the client device 3, of the handle names displayed in the friend list, an online handle name is desired as desired, and opening of chat is requested, then the user ID of the user of the client device 3 and the selected handle name are transmitted to the server device 1 (step S11-1). In the server device 1, opening of chat is processed by the chat processing unit 18. That is, the selected handle name is converted into the user ID by the ID converter 12 (step S11-2), and the room ID and room key for opening the chat are obtained from the chat DB 24. Further, a chat page is acquired from the WWW DB 22. This chat page is acquired by creating a new page by adding the handle name of the user to which the chat page is transmitted, to the basic data of the chat page.

[0185] Thus acquired room ID, room key and chat page are transmitted to the client device 3 requesting opening of the chat, and the client device 3 corresponding to the user ID converted by the ID converter 12 (step S11-3). In the client device 3, when the chat page is transmitted, the chat page is interpreted by the HTML interpretation unit 39, and displayed on the monitor (steps S11-4 to S11-7). That is, for the user of the client device 3, the chat page appears suddenly on the monitor of the own client device 3. Therefore, the dialog can be actively started to this user.

[0186] When opening the chat, the condition may be further added that the partner of chat is not rejected by other users selected as chat partners. That is, at the time of opening the chat, the user ID of the person registered as rejectee by other user selected as chat friend is extracted from the profile DB 28, and when the user ID of the user instructed for opening the chat coincides with this user ID, its registration is rejected. This process can be done in the validation processing unit 16. Such rejection of request may be done similarly in the PB message described later.

[0187] After display of chat page, the chat proceeds in the same manner as in the conventional chat. That

is, when one participant instructs transmission by writing statement in the chat page, this statement is sent to the server device 1 in GET system or POST system, together with the room ID and room key. In the chat processing unit 18 of the server device 1, presence or absence of transmission of statement is checked at specific interval, and only when statement is detected, the chat page in the WWW DB 22 is updated. The chat page displayed in each client device 3 is updated automatically, for example, by reading the same page repeatedly at specific interval, by using the Refresh function of META tag described in the HTML for composing the chat page. The statement in chat in this system is not limited to text input, but audio input is possible by using the microphone of the input device 35. The audio data is processed in the audio processing unit 41 of the client device 3 of the chat partner, and voice is delivered from the speaker of the output device 36.

[0188] Herein, participants in the chat can make a private chat by selecting only some of the present chat participants. This selection is same as selection of friend list, and a private chat is opened in the same processing as mentioned above. That is, by the processing of the chat processing unit 18 of the server device 1, new room ID and room key are obtained from the chat DB 24, and transmitted to the client device 3. A new chat page is acquired from the WWW DB 22, and transmitted and displayed in the client device 3. The new chat page can be acquired by creating a new page by adding region data of new chat page and others, to the data of the chat page transmitted in the last page.

[0189] This private chat page is not displayed on the monitor of the client device 3 of the user not possessing the room key of this chat page, and users A and C can exchange secret and private conversations. Such private chat rooms can be increased infinitely within a range permitted by the processing load problems of the server device 1 and client device 3 and the monitor display region problems.

[0190] Fig. 19 shows a display example of such chat page. Herein, suppose user A of client device 3A (handle name miss A), user B of client device 3B (handle name miss B), and user C of client device 3C (handle name miss C) are mutually registered in the friend list. When User A requests start of chat by selecting miss B and miss C, chat page P4 is displayed on the monitors of the client devices 3A to 3C by the above processing. Thus, these three friends begin to chat.

[0191] Further, when user A requests start of chat by individually selecting miss C, a new chat page P4' is transmitted displayed only in the client devices 3A and 3C by the same process. By using this chat page P4', these two begin to chat privately.

[0192] Finally, the process for execution of PB message is explained. Fig. 12 is a flowchart showing execution process of PB message. To transmit the PB message, the destination of transmission must be selected, and this selection is made by using the online URL lo-

cate list, WWW URL locate list, or friend list. For example, while the friend list is displayed, together with the chat page, on the monitor of the client device 3A, by selecting the handle name of the partner desired to transmit the PB message to, of the handle names displayed in the friend list, and requesting transmission of PB message, this request is processed in the PB message transmitting and receiving unit 40.

[0193] By the processing of the PB message transmitting and receiving unit 40, first, the page for message input is displayed on the monitor of the client device 3A. This page for input has at least an input column for entering the message data. When the user A enters the message in this input column and instructs transmission, this message, the selected handle name, and user ID of user A are transmitted to the server device 1 (step S12-1). The message data is not limited to text data, but may be compiled also as video data or audio data.

[0194] In the server device 1, the transmitted handle name is converted into the user ID by the ID converter 12 (step S12-2). Consequently, by the processing of the PB message processing unit 19, the connection state of the client device 3B corresponding to the converted user ID is judged by referring to the connection state list stored in the connection information storage unit 20 (step S12-3). If it is offline, the user ID and message transmitted from the client device 3A are related to each other, and spooled in the PB message DB 26 (step S12-4), and processing is over. In this case, the message is transmitted when presence or absence of spool message is inquired from the client device 3B by designating the user ID.

[0195] On the other hand, if online at step S12-3, an inquiry page for inquiring acceptance or rejection of reception of message and message content are transmitted to the client device 3B corresponding to the converted user ID (step S12-5). Receiving them, at the client device 3B, first only the inquiry page is displayed (steps S12-6, S12-7), then the user enters acceptance or rejection of reception of the message. Only when accepted, the message is delivered through the monitor or speaker (steps S12-8, S12-9). The information showing the result of acceptance or rejection of reception is transmitted to the server device 1 (step S12-10). This information is transmitted and displayed in the client device 3A through the server device 1 (steps S12-11 to S12-14). Thus, transmission process of PB message is terminated.

[0196] Fig. 20A and Fig. 20B show a display example of inquiry page and PB message page. As shown in Fig. 20A, the inquiry page shows the sender's handle name HM, and reception Y/N as input for accepting or rejecting the reception. If the message includes audio or video data, it is noticed by image IM. The recipient clicks Y or N, and can accept or reject reception. Alternatively, when the image IM is clicked, it is assumed that the reception is accepted.

[0197] Thus, in the case of acceptance input of recep-

tion, the PB message page of Fig. 20B is displayed. This page shows the sender's handle name HM, and message content MN. In the case of audio message, instead of the message content MN, or together with the message content MN, the audio message is delivered through the speaker.

[0198] As described herein, according to the communication system of one aspect of the present invention, when the user of the client device requests opening of a chat, a chat room is opened actively. Therefore, same as in reality or more than in reality, real-time and dynamic communication can be made, and a new communication system capable of newly arousing the interest of the users can be built up.

[0199] According to the communication system of another aspect of the present invention, when the user of the client device sends a message, the presence of the message and its content are immediately transmitted, and therefore the trouble when starting up the communication can be eliminated, and a novel communication system capable of attracting the user to the dialog can be built up.

[0200] Furthermore, other users reading the same Web page can be easily known, and to such users, the chat or PB message can be sent, and therefore the circle of communication is further widened.

[0201] Furthermore, other users encountered on the system can be registered in the friend list, and the partner of chat or message transmission can be selected by referring to this friend list, so that more friendly communication is possible.

[0202] Furthermore, if multiple users are displayed, a specific user can be easily searched from these multiple users. Therefore, smoother communication is possible.

[0203] Furthermore, by registering undesired partners preliminarily in the rejection list, request from such partners can be rejected automatically. Therefore, inappropriate communication can be limited.

[0204] According to the communication system of still another aspect of the present invention, if a person prohibited from using this system attempts to change the identification number in this system, the use of the system by such person can be securely excluded.

[0205] According to the communication system of still another aspect of the present invention, the identification information of each user is displayed to other users as handle name, and the identification information is not directly displayed. Therefore, unexpected exposure of identification information to other users can be prevented.

[0206] According to the server device of still another aspect of the present invention, by building up a communication system by using this server device, the chat is opened dynamically according to the request from the client device, and real-time and dynamic communication is made, and a novel communication system arousing the interest of the users newly can be built up.

[0207] According to the server device of still another

aspect of the present invention, by building up a communication system by using this server device, the message is transmitted immediately according to the request from the client device, and real-time and dynamic communication is made. Hence, the trouble of starting up the communication can be eliminated, and a novel communication system capable of attracting the user to the dialog can be built up.

[0208] Furthermore, by building up a communication system by using this server device, for example, when a user is reading a Web page, other users reading the same Web page can be easily known. At the same time, for such users, the chat or PB message can be sent, and therefore hitherto unknown people can be encountered incidentally, and the circle of communication is further widened.

[0209] Furthermore, by building up a communication system by using this server device, for example, other users encountered on the system can be registered in the friend list, and the partner of chat or message transmission can be selected by referring to this friend list, and it is easier to communicate with people sharing the same hobby, and appropriate encounter of users is promoted, and more friendly communication is possible.

[0210] Furthermore, by building up a communication system by using this server device, since the selected users are displayed as being arrayed and stratified, if multiple users are displayed, a specific user can be easily searched from these multiple users. Therefore, smoother communication is possible.

[0211] Furthermore, by building up a communication system by using this server device, for example, by registering undesired partners preliminarily in the rejection list, if opening of chat or transmission of message is requested from the partner registered in the rejection list, such request can be rejected automatically. Therefore, inappropriate communication can be limited.

[0212] According to the server device of still another aspect of the present invention, by building up a communication system by using this server device, if a person prohibited from using this system attempts to change the identification number in this system, the use of the system by such person can be securely excluded.

[0213] According to the server device of still another aspect of the present invention, by building up a communication system by using this server device, the identification information of each user is displayed to other users as handle name, and the identification information is not directly displayed. Therefore, unexpected exposure of identification information to other users can be prevented.

[0214] According to the communication method of still another aspect of the present invention, by executing each procedure in the communication system, the chat is opened dynamically according to the request from the client device, and real-time and dynamic communication is made, and a novel communication system arousing the interest of the users newly can be built up.

[0215] According to the communication method of still another aspect of the present invention, by executing each procedure in the communication system, the message is transmitted immediately according to the request from the client device, and real-time and dynamic communication is made. Hence, the trouble of starting up the communication can be eliminated, and a novel communication system capable of attracting the user to the dialog can be built up.

[0216] According to the communication method of still another aspect of the present invention, by executing each procedure in the communication system, if a person prohibited from using this system attempts to change the identification number in this system, the use of the system by such person can be securely excluded.

[0217] According to the communication method of still another aspect of the present invention, by executing each procedure in the communication system, the identification information of each user is displayed to other users as handle name, and the identification information is not directly displayed. Therefore, unexpected exposure of identification information to other users can be prevented.

[0218] According to the computer-readable recording medium recording a program of still another aspect of the present invention, the communication method according to the present invention can be easily and automatically realized on a computer.

[0219] Although the invention has been described with respect to a specific embodiment for a complete and clear disclosure, the appended claims are not to be thus limited but are to be construed as embodying all modifications and alternative constructions that may occur to one skilled in the art which fairly fall within the basic teaching herein set forth.

## Claims

1. A communication system comprising a server device and a plurality of client devices connected through a network and allowing mutual communications among users of the client devices,

the server device having,  
 a matching unit which selects a candidate user for participant in a chat according to a specified standard, and transmits the information about this user to a client device; and  
 a chat processing unit which transmits specified information for starting a chat, when start of a chat is requested by specifying whole or part of users selected by the user selecting unit from one client device, to the client device of this specified user, and the one client device issuing this request, and  
 each of the client device having a display unit which displays the region for chat on the basis

of the specified information when this information for starting a chat is transmitted from the server device.

2. A communication system comprising a server device and a plurality of client devices connected through a network and allowing mutual communications among users of the client devices,

the server device having,  
 a matching unit which selects a candidate user for destination of transmission of message according to a specified standard, and transmits the information about this user to a client device; and

a message processing unit which transmits the content of the message to the client device of the specified user, when message transmission is requested by specifying whole or part of users selected by the user selecting unit from one client device, and when the content of the message is specified, and

each of the client device having an output unit which issues a specified output, when the content of the message is transmitted from the server device, so that at least its presence may be recognized by the user of the client device.

3. A communication system comprising a server device and a plurality of client devices connected through a network and allowing mutual communications among users of the client devices,

the server device having,  
 a profile storing unit which stores first identification information preliminarily given to the user for identifying the user in the network, second identification information preliminarily given to the user for identifying the user in the communication system, and permit information relating to approval or disapproval of use of the service to the user, being the information stored at least corresponding to the first identification information; and

a validation processing unit which extracts the permit information corresponding to the first identification information from the profile storing unit when the first identification information and second identification information are presented from the client device and use of specific service is requested, and judges approval or disapproval of presentation of service to the client device on the basis of this permit information and the request for use presented from the client device.

4. A communication system comprising a server device and a plurality of client devices connected

through a network and allowing mutual communications among users of the client devices,

the server device having,

a profile storing unit which stores identification information preliminarily given to the user for identifying the user in the communication system, and an arbitrary handle name of the user, by relating to each other; and

an ID converting unit which extracts the handle name corresponding to the identification information from the profile storing unit when the identification information is presented from one client device and use of specific service relating to other client device is requested, and converts the identification information depending on this handle name.

5. A server device connected to plural client devices through a network, for allowing mutual communications among users of these client devices, the server device comprising:

a matching unit which selects a candidate user for participant in a chat according to a specified standard, and transmits the information about this user to a client device; and

a chat processing unit which transmits specified information for starting a chat, when start of a chat is requested by specifying whole or part of users selected by the user selecting unit from one client device, to the client device of this specified user, and the one client device is suing this request.

6. A server device connected to plural client devices through a network, for allowing mutual communications among users of these client devices, the server device comprising:

a matching unit which selects a candidate user for destination of transmission of message according to a specified standard, and transmits the information about this user to a client device; and

a message processing unit which transmits the content of the message to the client device of the specified user, when message transmission is requested by specifying whole or part of users selected by the user selecting unit from one client device, and when the content of the message is specified.

7. A communication system according to claim 1 or 2 or a server device according to claim 5 or 6, wherein the matching unit selects the user of other client device to which the same information is transmitted in the last place,

concerning the information transmitted in the last place to each client device, among the users of the client devices of which connection is established at the present.

8. A communication system according to claim 1 or 2 or a server device according to claim 5 or 6, wherein the matching unit selects the user preliminarily registered as having specific relation by the users of each client device, among the users of the client devices of which connection is established at the present.

9. A communication system according to claim 1 or 2 or a server device according to claim 5 or 6, wherein the matching unit arrays or stratifies the selected users according to a specified standard.

10. A communication system according to claim 1 or 2 or a server device according to claim 5 or 6 further comprising a validation processing unit which rejects request of a specific processing, when a specific processing is requested from one client device to another client device, if the user of the one client device has been already registered as having a specific relation by the user of the other client device.

11. A server device connected to plural client devices through a network, for allowing mutual communications among users of these client devices, the server device comprising:

a profile storing unit which stores first identification information preliminarily given to the user for identifying the user in the network, second identification information preliminarily given to the user for identifying the user in the communication system, and permit information relating to approval or disapproval of use of the service to the user, being the information stored at least corresponding to the first identification information; and

a validation processing unit which extracts the permit information corresponding to the first identification information from the profile storing unit when the first identification information and second identification information are presented from the client device and use of specific service is requested, and judges approval or disapproval of presentation of service to the client device on the basis of this permit information and the request for use presented from the client device.

12. A server device connected to plural client devices through a network, for allowing mutual communications among users of these client devices, the server device comprising:



er device comprising:

a profile storing unit which stores identification information preliminarily given to the user for identifying the user in the communication system, and an arbitrary handle name of the user, by relating to each other; and  
an ID converting unit which extracts the handle name corresponding to the identification information from the profile storing unit when the identification information is presented from one client device and use of specific service relating to other client device is requested, and converting the identification information depending on this handle name.

13. A communication method allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes,

a matching step of selecting a candidate user for participant in a chat according to a specified standard, and transmitting the information about this user to a client device; and  
a chat processing step of transmitting specified information for starting a chat, when start of a chat is requested by specifying whole or part of users selected by the user selecting unit from one client device, to the client device of this specified user, and the one client device issuing this request, and  
the client device executes a display step of displaying the region for chat on the basis of the specified information when this information for starting a chat is transmitted from the server device.

14. A communication method allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes,

a matching step of selecting a candidate user for destination of transmission of message according to a specified standard, and transmitting the information about this user to a client device; and  
a message processing step of transmitting the content of the message to the client device of the specified user, when message transmission is requested by specifying whole or part of users selected by the user selecting unit from one client device, and when the content of the message is specified, and  
the client device executes an output step of is-

suing a specified output, when the content of the message is transmitted from the server device, so that at least its presence may be recognized by the user of the client device.

15. A communication method allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes,

a profile storing step of storing first identification information preliminarily given to the user for identifying the user in the network, second identification information preliminarily given to the user for identifying the user in the communication system, and permit information relating to approval or disapproval of use of the service to the user, being the information stored at least corresponding to the first identification information; and

a validation processing step of extracting the permit information corresponding to the first identification information from the profile storing unit when the first identification information and second identification information are presented from the client device and use of specific service is requested, and judging approval or disapproval of presentation of service to the client device on the basis of this permit information and the request for use presented from the client device.

16. A communication method allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes,

a profile storing step of storing identification information preliminarily given to the user for identifying the user in the communication system, and an arbitrary handle name of the user, by relating to each other; and  
an ID converting procedure of extracting the handle name corresponding to the identification information from the profile storing unit when the identification information is presented from one client device and use of specific service relating to other client device is requested, and converting the identification information depending on this handle name.

17. A computer-readable recording medium recording a program for allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes,



- a matching step of selecting a candidate user for participant in a chat according to a specified standard, and transmitting the information about this user to a client device; and  
 a chat processing step of transmitting specified information for starting a chat, when start of a chat is requested by specifying whole or part of users selected by the user selecting unit from one client device, to the client device of this specified user, and the one client device issuing this request. 5 10
18. A computer-readable recording medium recording a program for allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes, 15
- a matching step of selecting a candidate user for destination of transmission of message according to a specified standard, and transmitting the information about this user to a client device; and 20
- a message processing step of transmitting the content of the message to the client device of the specified user, when message transmission is requested by specifying whole or part of users selected by the user selecting unit from one client device, and when the content of the message is specified. 25 30
19. A computer-readable recording medium recording a program for allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes, 35
- a profile storing step of storing first identification information preliminarily given to the user for identifying the user in the network, second identification information preliminarily given to the user for identifying the user in the communication system, and permit information relating to approval or disapproval of use of the service to the user, being the information stored at least corresponding to the first identification information; and 40 45
- a validation processing step of extracting the permit information corresponding to the first identification information from the profile storing unit when the first identification information and second identification information are presented from the client device and use of specific service is requested, and judging approval or disapproval of presentation of service to the client device on the basis of this permit information and the request for use presented from the client device. 50 55

20. A computer-readable recording medium recording a program for allowing mutual communications among users of client devices by using plural client devices connected to a server device through a network, wherein the server device executes,

a profile storing step of storing identification information preliminarily given to the user for identifying the user in the communication system, and an arbitrary handle name of the user, by relating to each other; and  
 an ID converting procedure of extracting the handle name corresponding to the identification information from the profile storing unit when the identification information is presented from one client device and use of specific service relating to other client device is requested, and converting the identification information depending on this handle name.

FIG.1

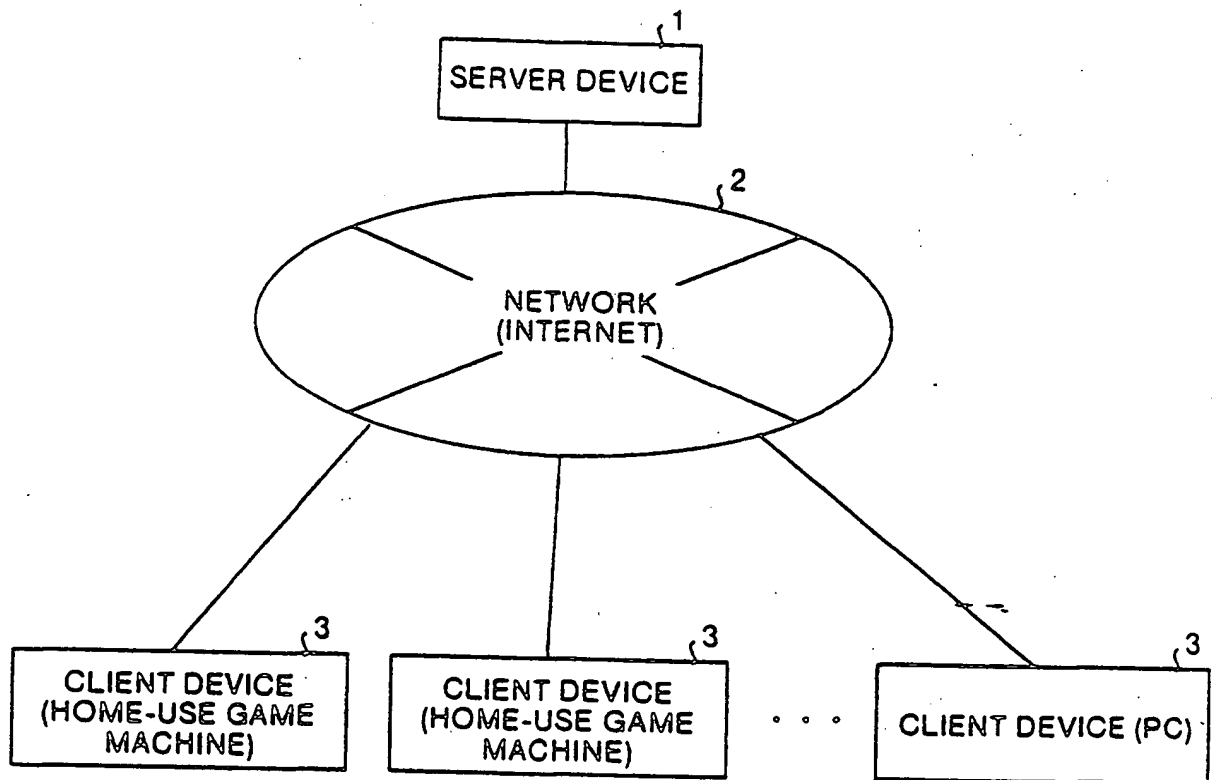


FIG.2

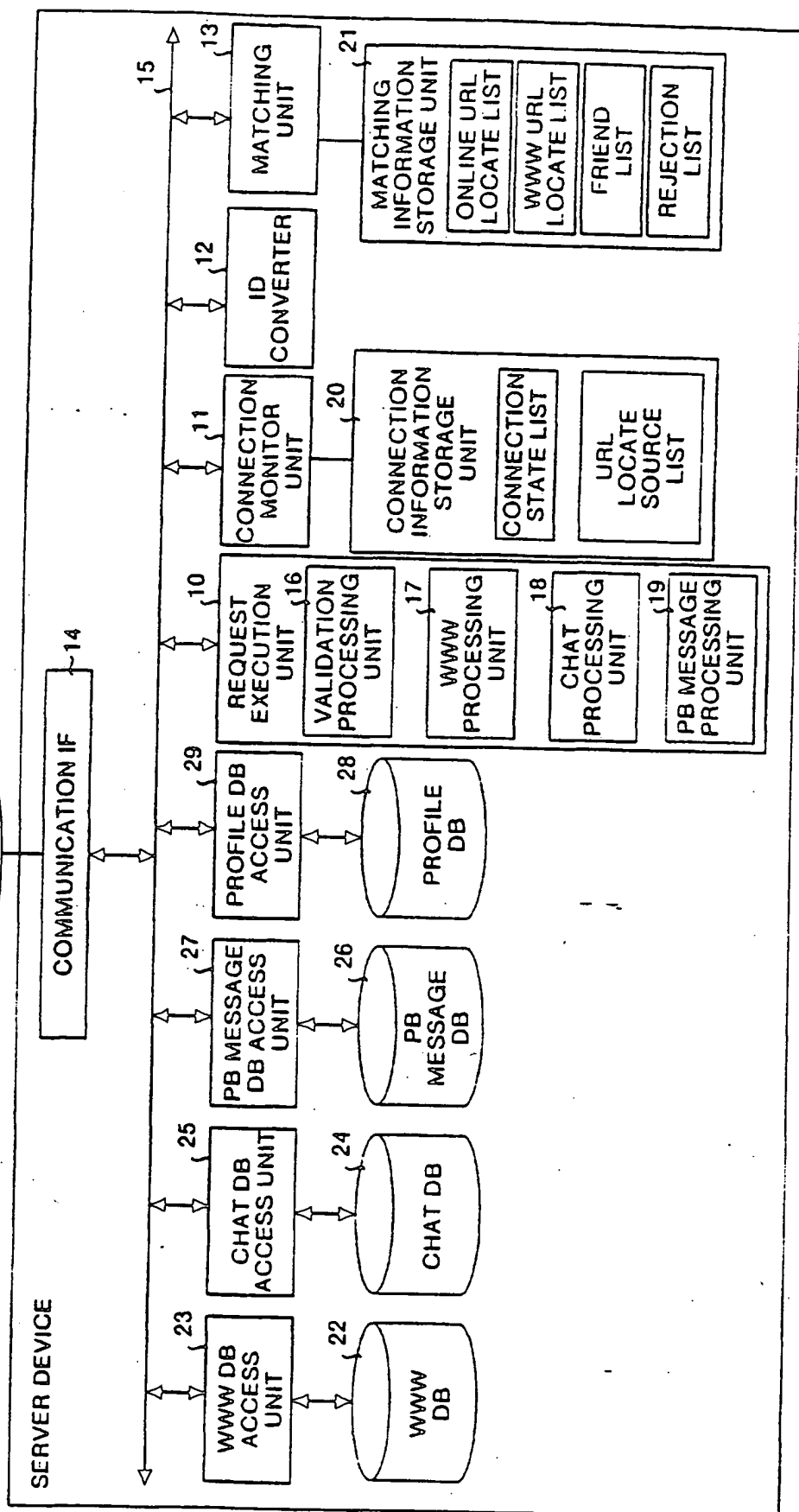


FIG.3

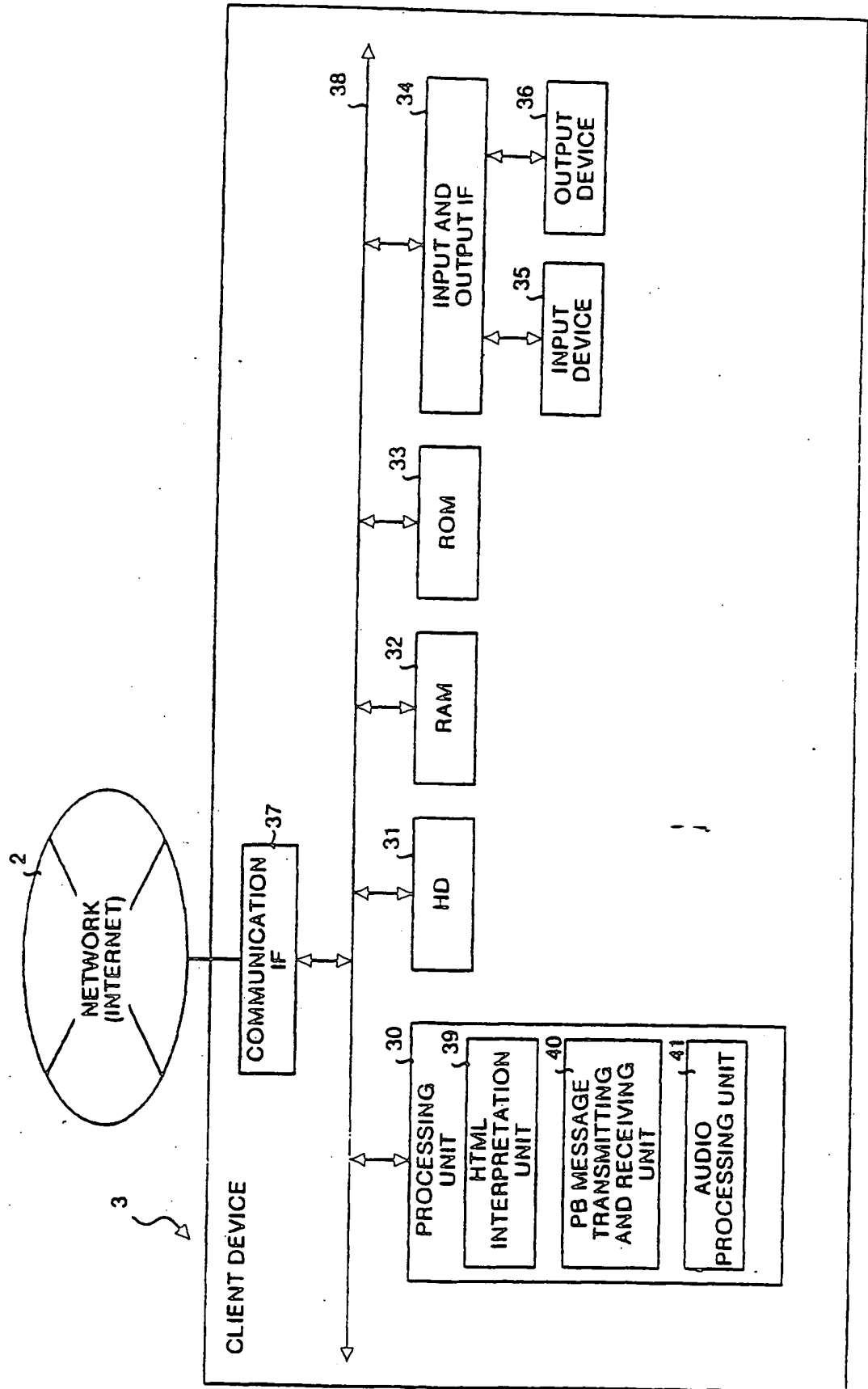


FIG. 4

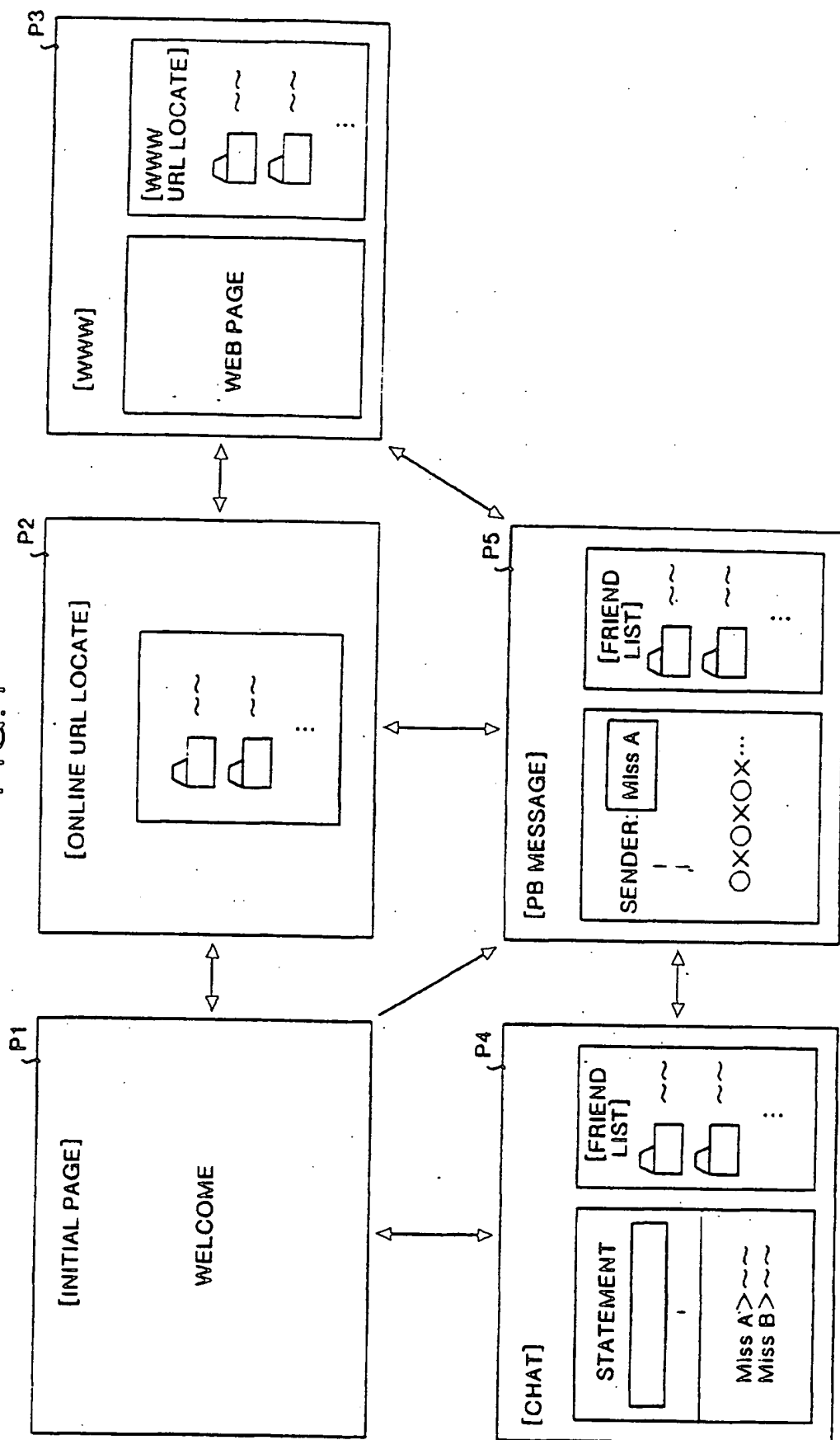


FIG.5

[USER VALIDATION: CommID ISSUE]

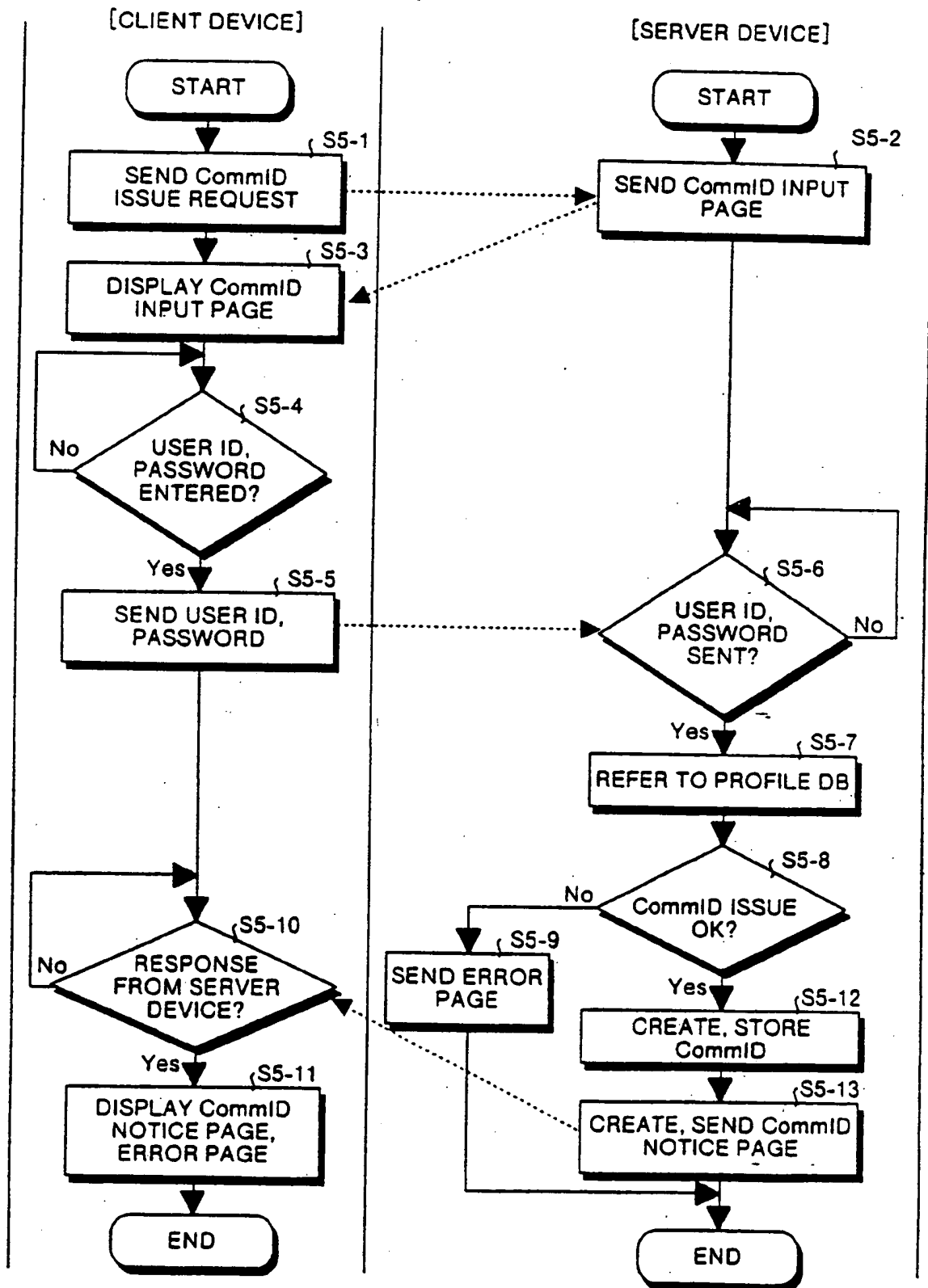


FIG.6

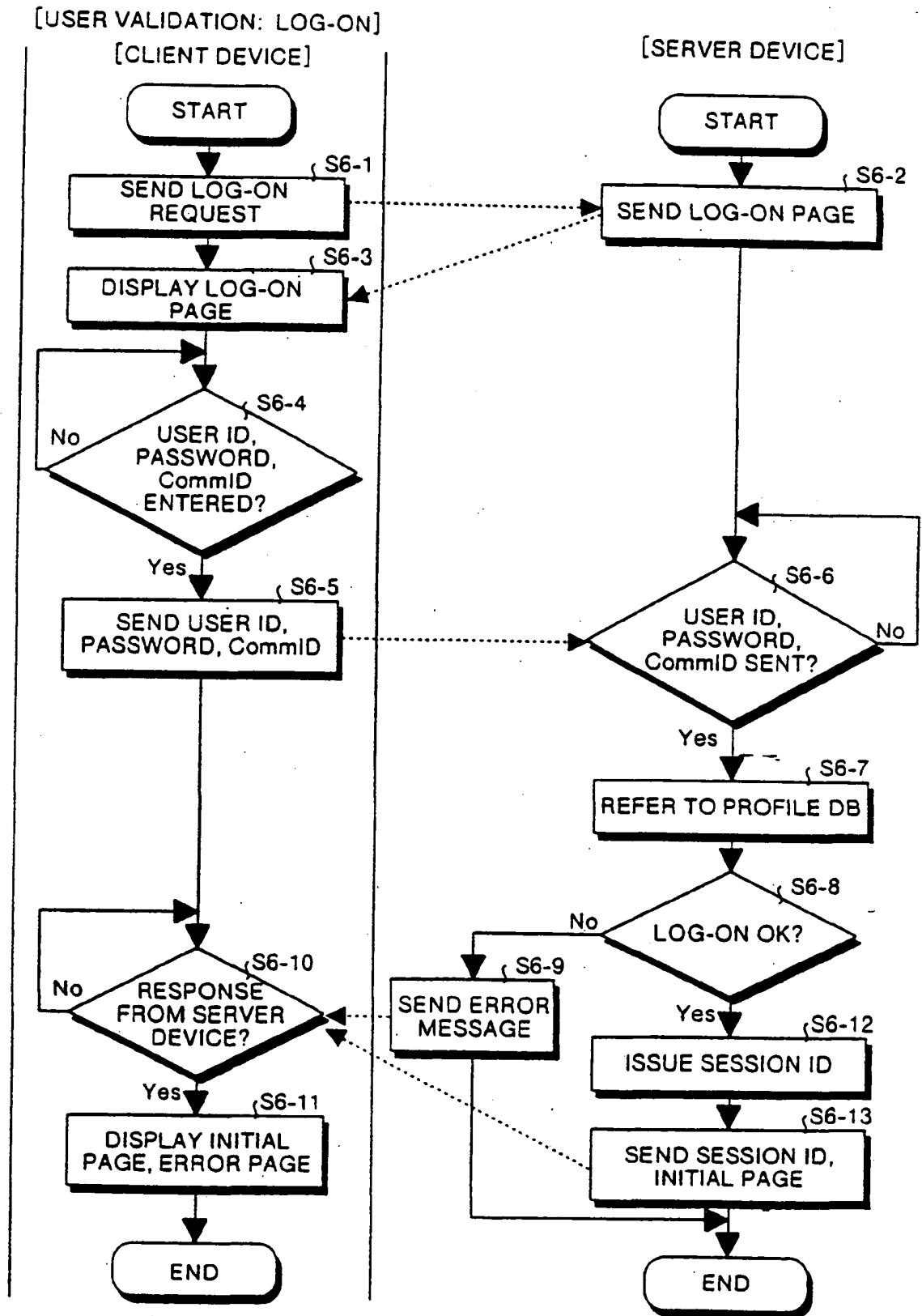


FIG.7

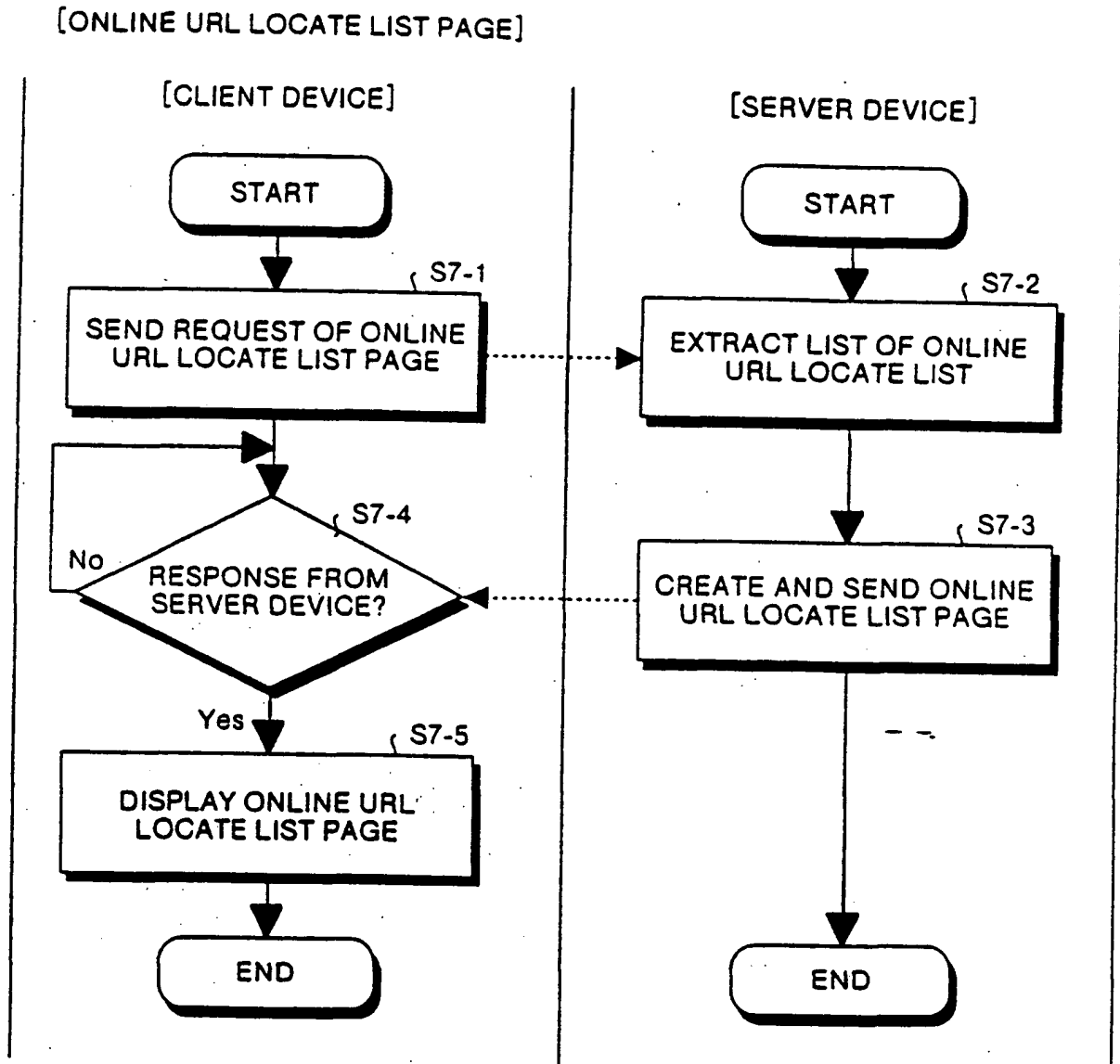




FIG.8

[ONLINE URL LOCATE LIST]

[SERVER DEVICE]

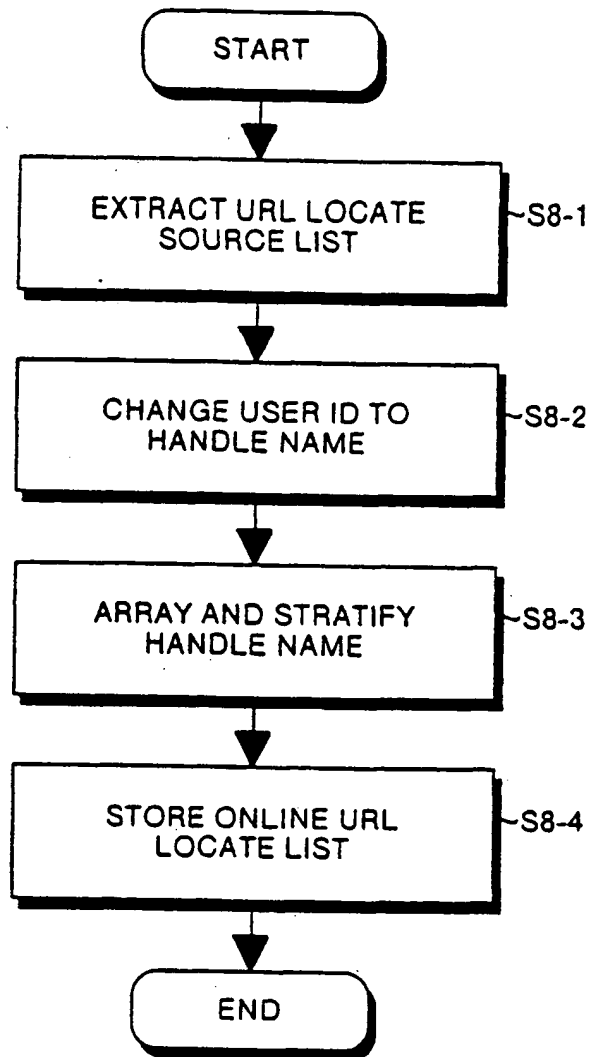


FIG.9

[WWW URL LOCATE LIST]

[CLIENT DEVICE]

[SERVER DEVICE]

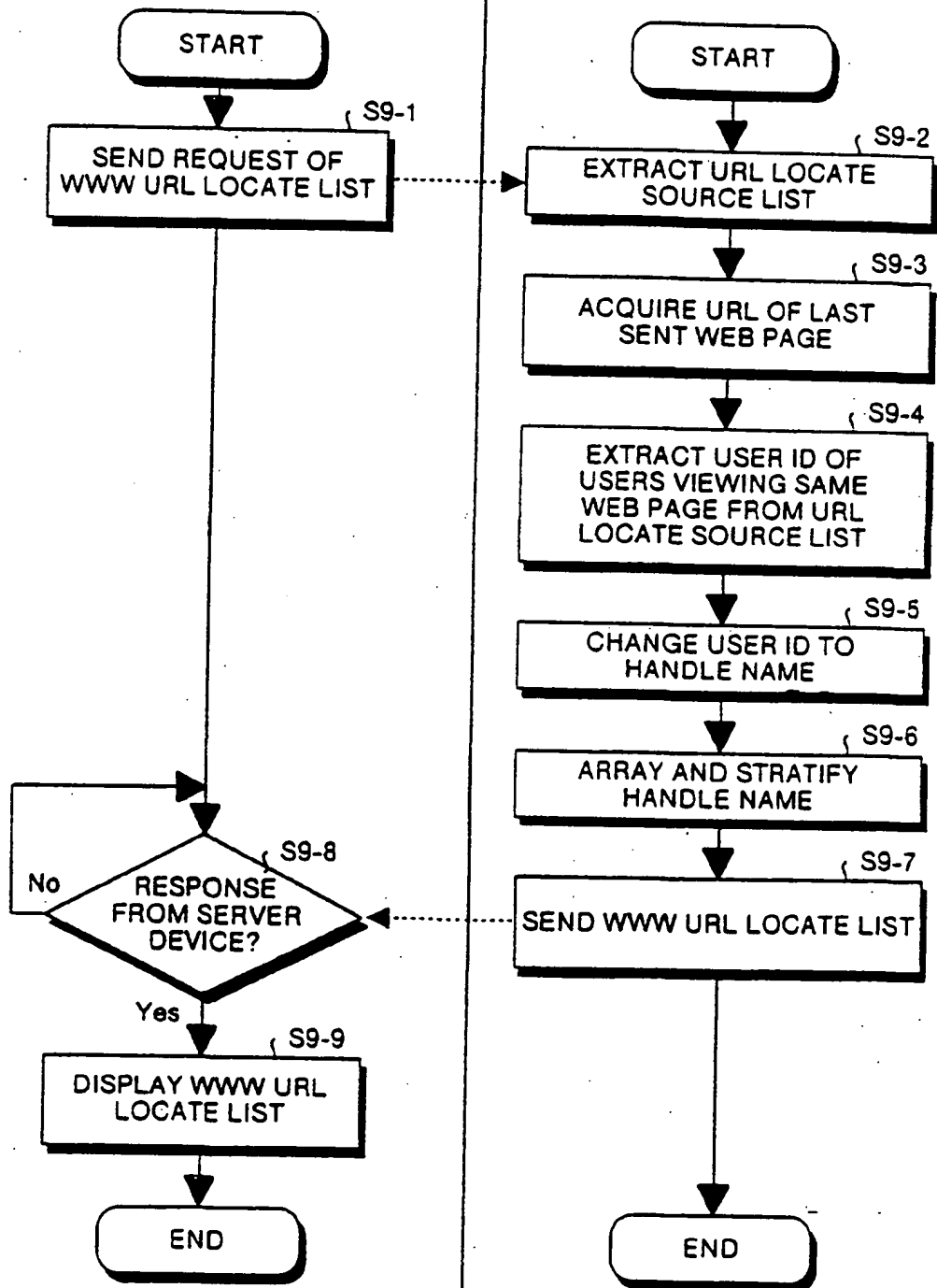


FIG.10

[FRIEND LIST, REJECTION LIST]

[CLIENT DEVICE]

[SERVER DEVICE]

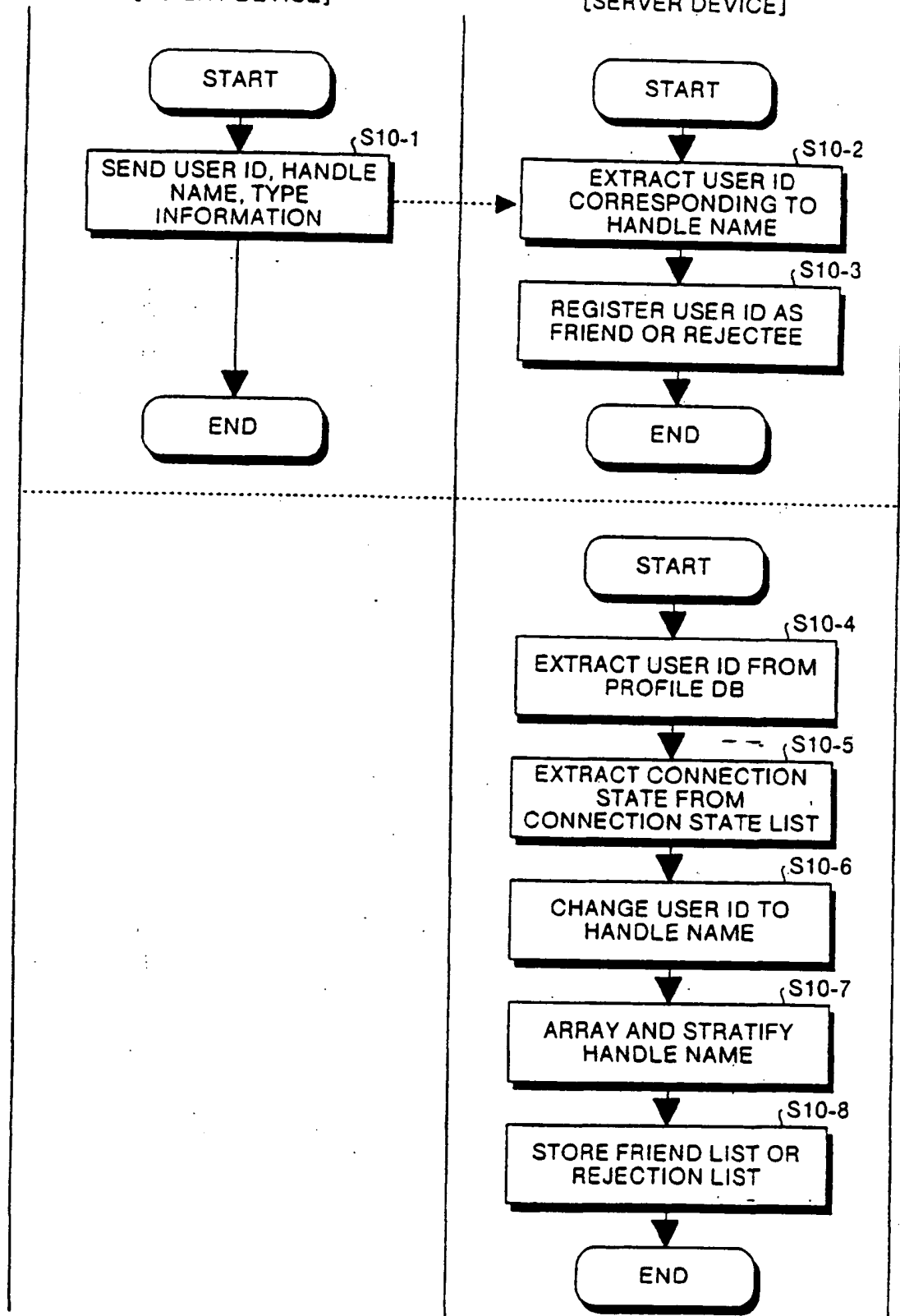


FIG.11

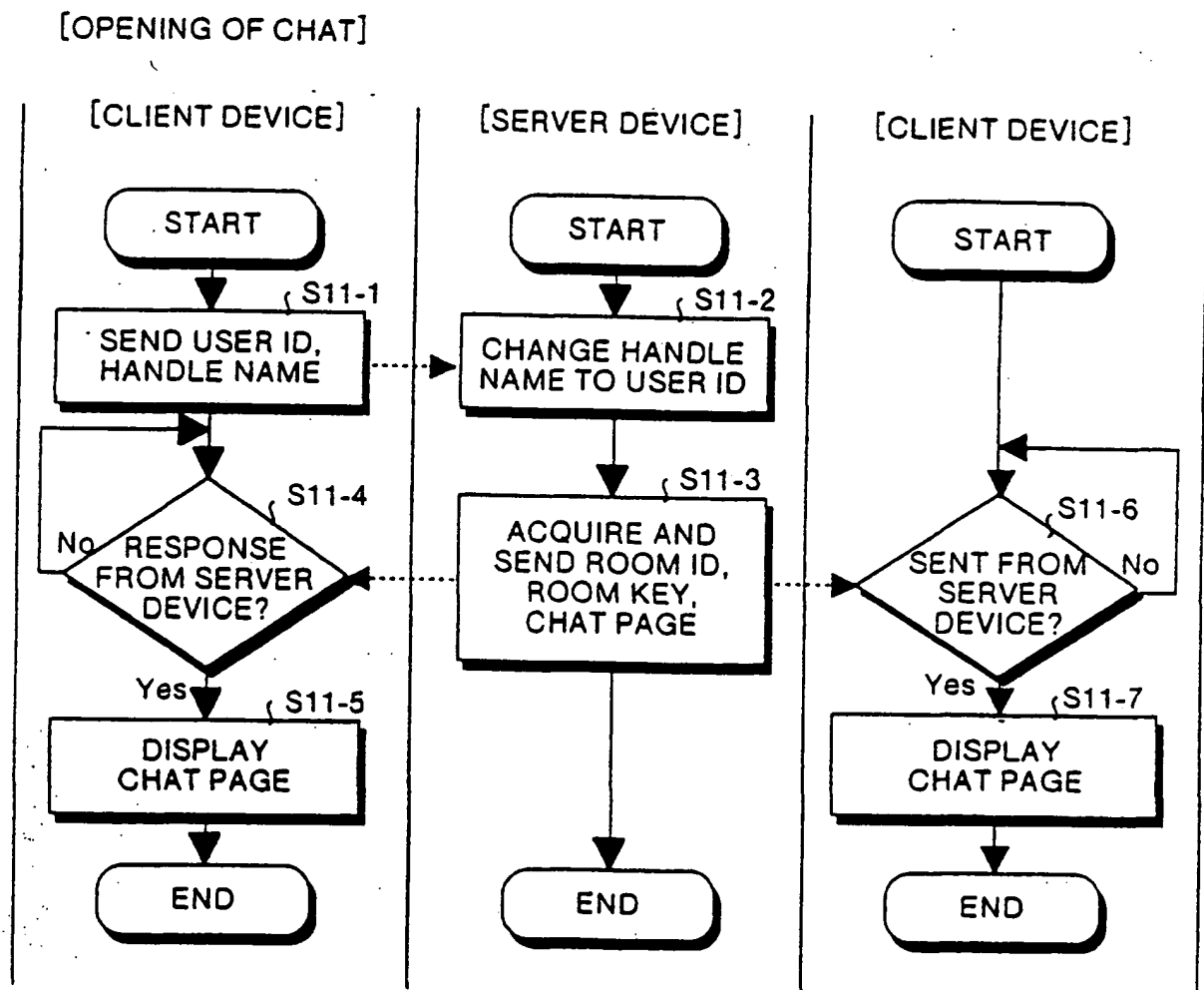


FIG.12

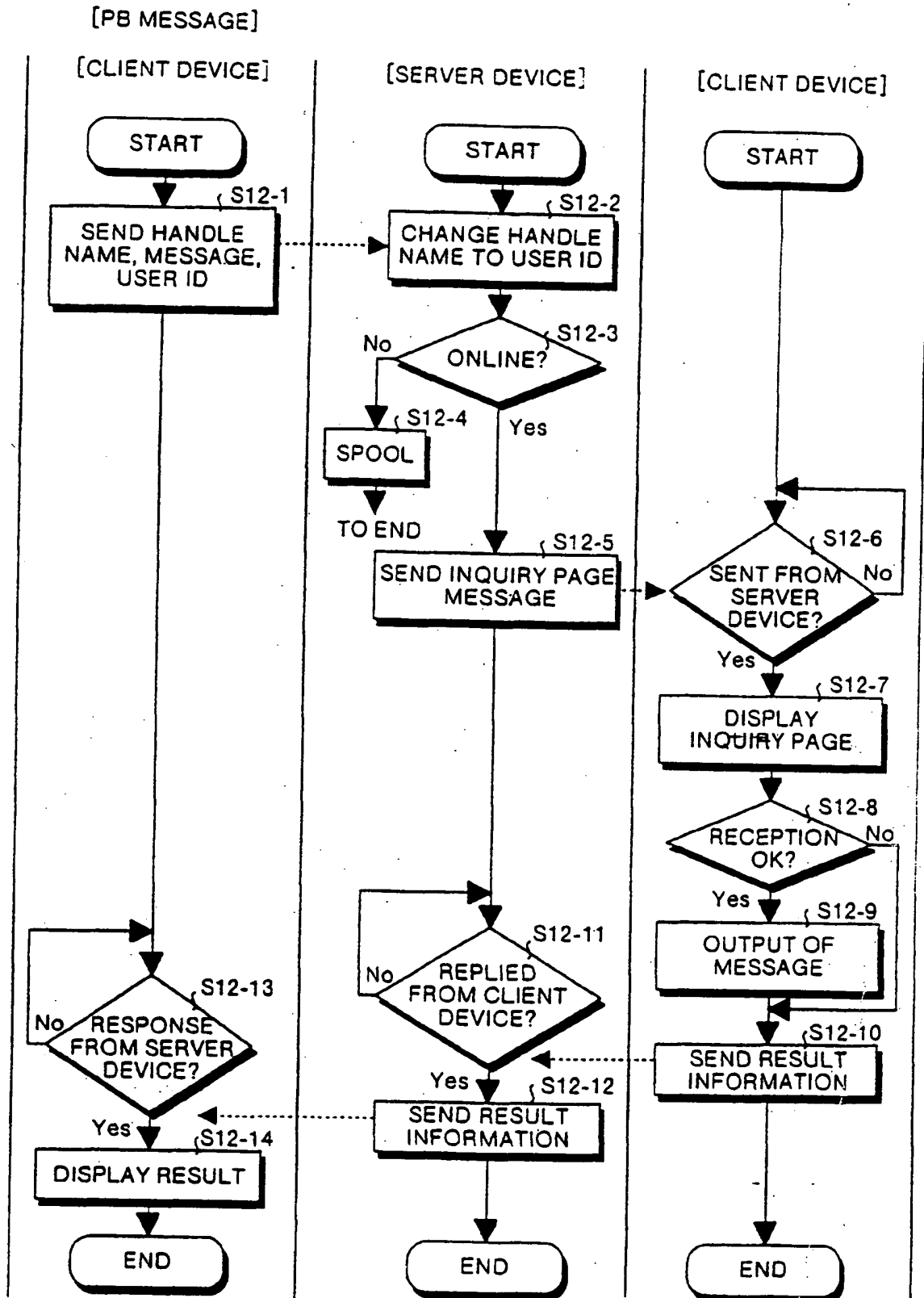


FIG.13

[CONNECTION STATE LIST]

USER ID	CONNECTION STATE
UIDOOOa	ONLINE
UIDOOOb	ONLINE
UIDOOOc	OFFLINE

FIG.14

[URL LOCATE SOURCE LIST]

USER ID	URL
UIDOOOa	http://www.OXOX~
UIDOOOb	http://www.ΔΔXX~
UIDOOOc	http://www.OΔΔX~

FIG.15

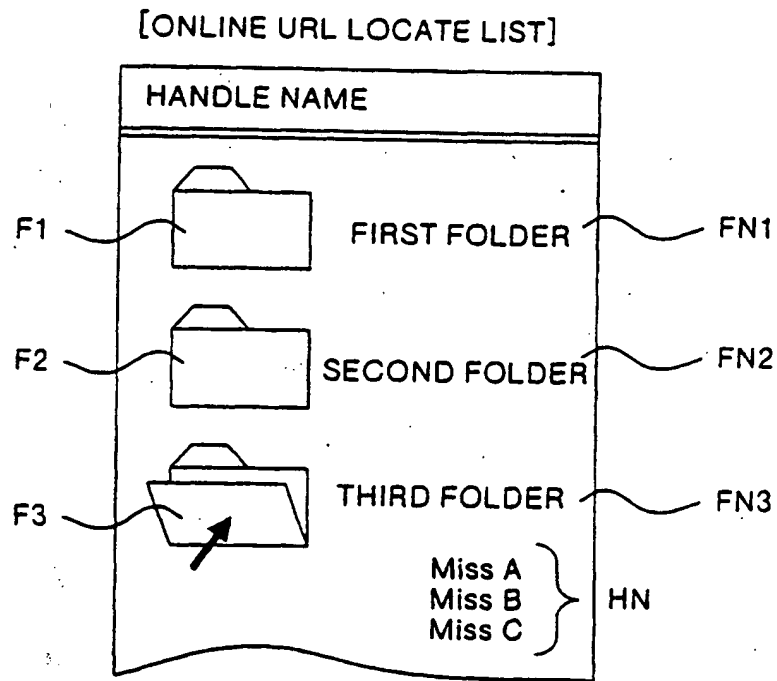


FIG.16

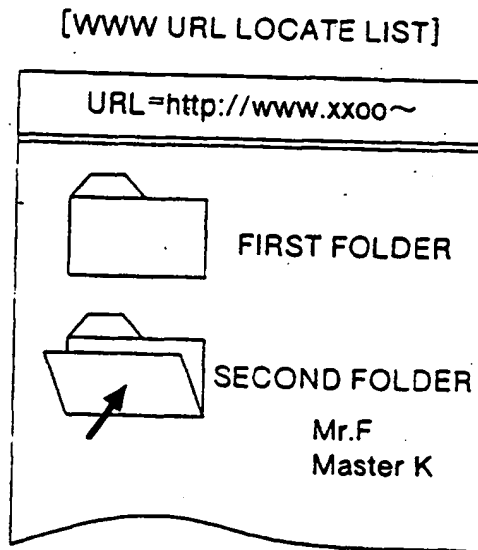
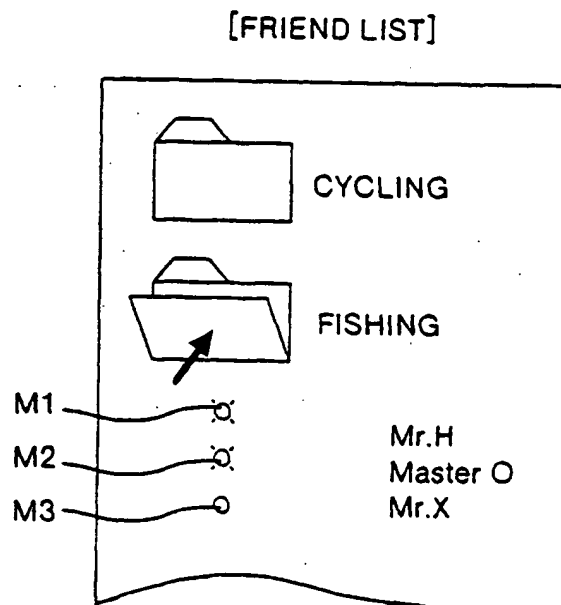


FIG.17





[WWW URL LOCATE LIST]

FIG.18A

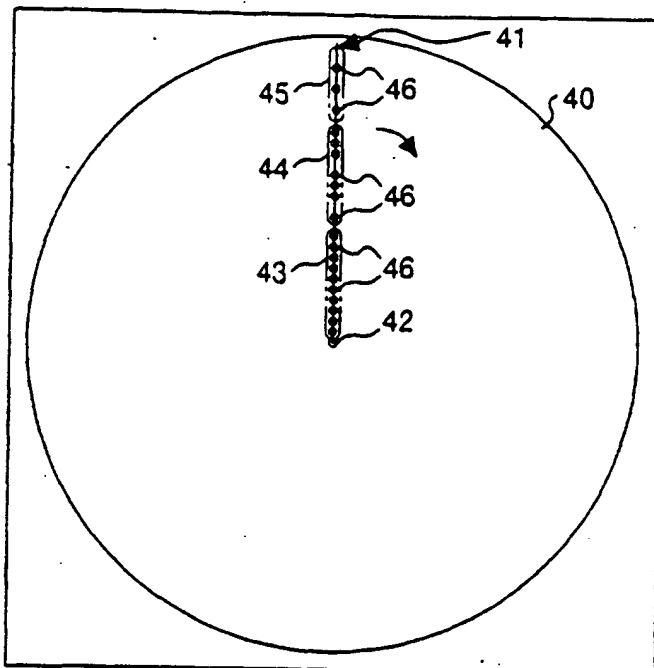


FIG.18B

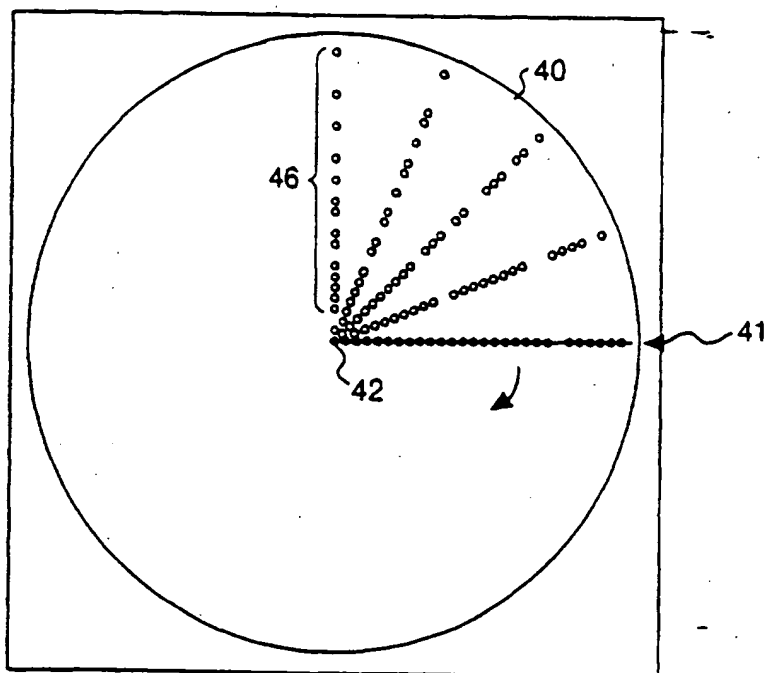


FIG. 19

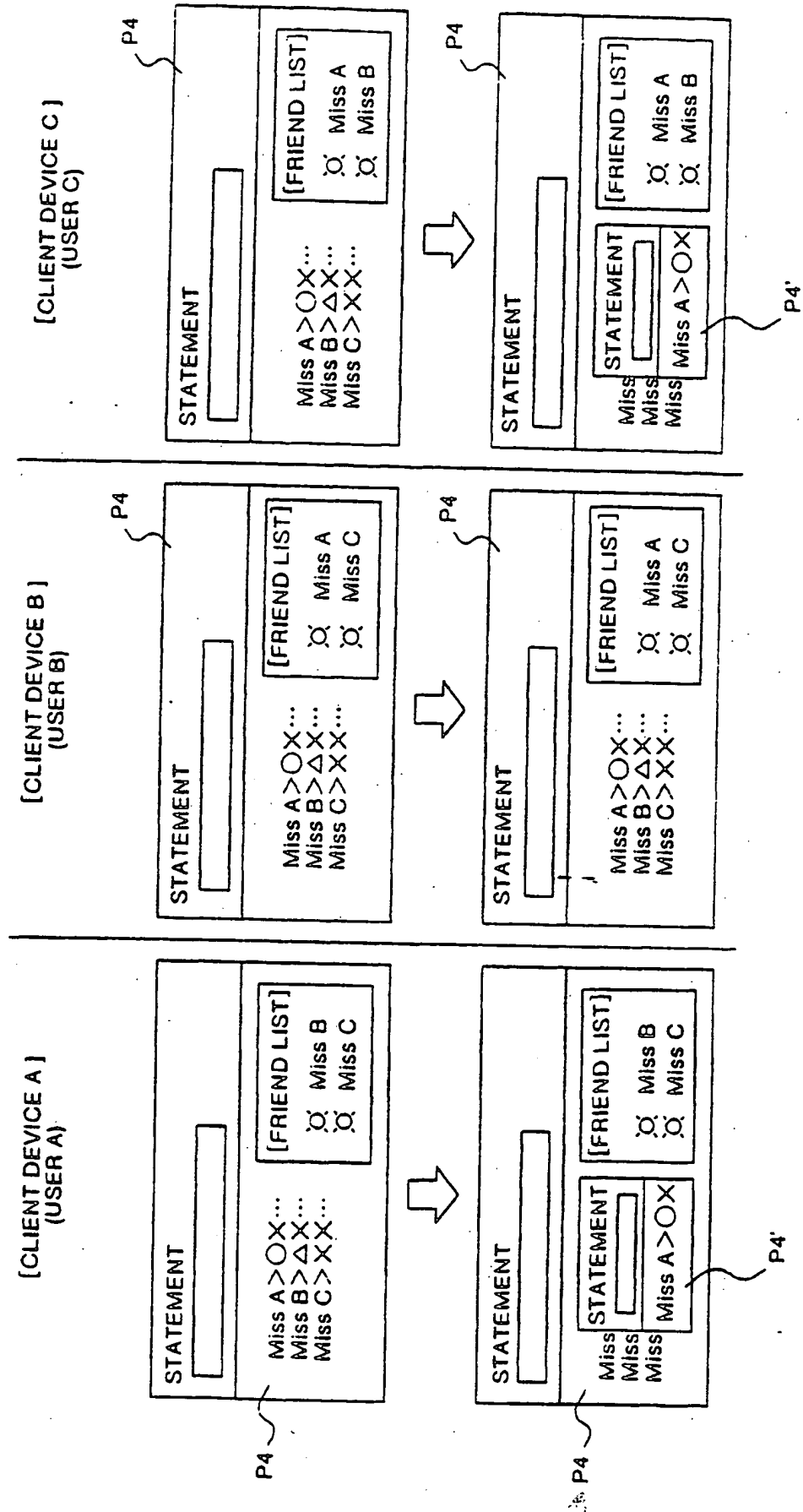


FIG.20A

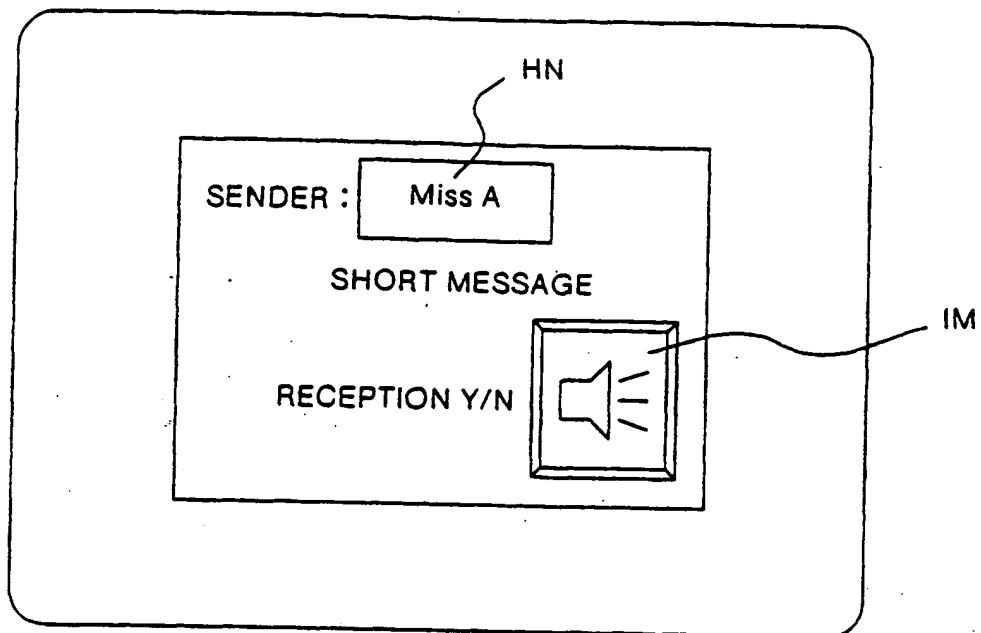
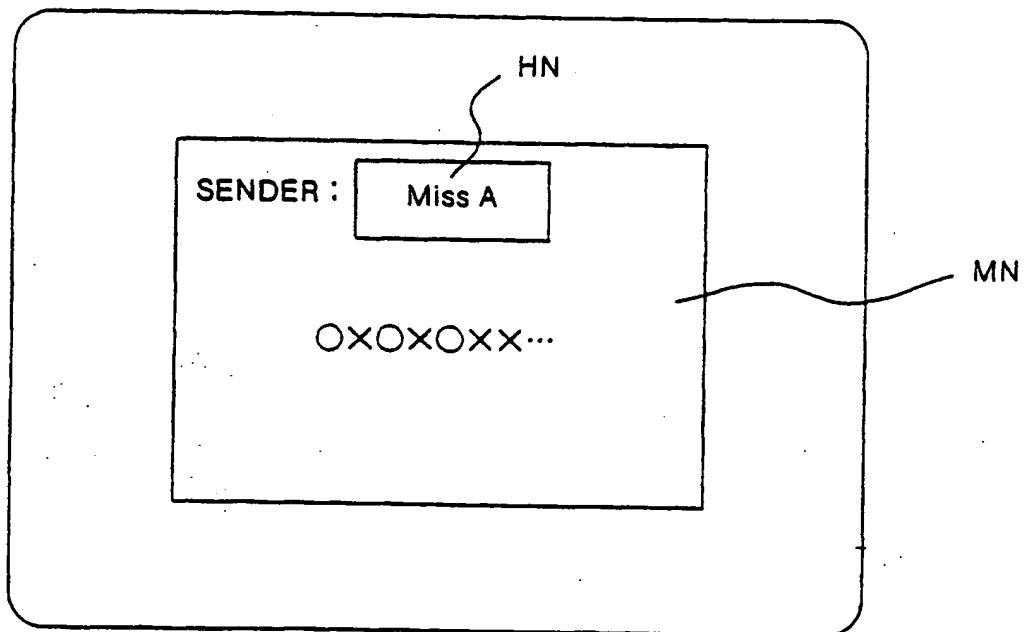


FIG.20B



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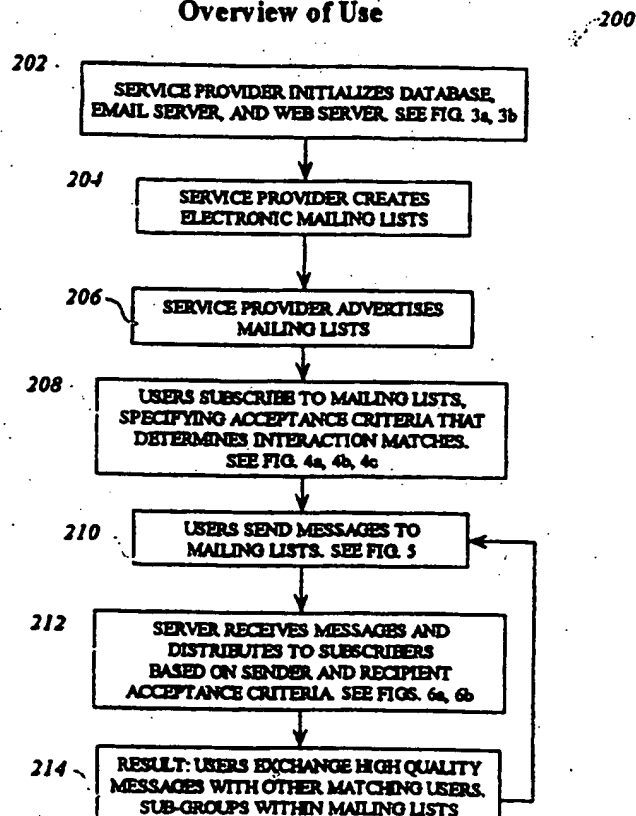
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(54) Title: DYNAMIC MATCHING™ OF USERS FOR GROUP COMMUNICATION

## (57) Abstract

A method for users to exchange group electronic mail by establishing individual profiles and criteria (302) for determining individualized groups. Users establish subscription (208) to an electronic mailing list (204) by specifying user profiles and profile criteria (302) to screen users. When a user subscribes (208), a web server (346) establishes and stores an individualized list (204) of subscribers (208) who form a mutual criteria match with the user. When the user then sends a message to the mailing list (210), an email server (354) filters her recipient list down to a message distribution list using each recipient's message criteria (302). The message is then distributed to matching users. Additionally, email archives and information contributions from users are stored in a database. A web server creates an individualized set of web pages for a user from the database, containing contributions only from users in his recipient list. In other embodiments, users apply mutual criteria matching and message profile criteria to other group forums, such as newsgroups, voicemail, instant messaging, chat, web-based discussion boards, and online gaming rendezvous.

## Overview of Use



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## Specification

## DYNAMIC MATCHING™ OF USERS FOR GROUP COMMUNICATION

## 5 REFERENCE TO RELATED APPLICATIONS

This application claims priority to provisional patent application serial number 60/100,387, filing date 09/15/98, entitled "Electronic Match-Making Within A Group Using Criteria." This application also claims priority to provisional patent application serial number 60/115,566, filing date 01/12/99, entitled "Dynamic Matching of Users For Group  
10 Communication." This application also claims priority to provisional patent application serial number 60/143,947, filing date 07/15/99, entitled "Dynamic Matching of Users For Group Communication."

## BACKGROUND OF THE INVENTION

## FIELD OF INVENTION

15 This invention relates to electronic communication within group forums, specifically a process for dynamically matching users for high quality interactions within a group forum by establishing individual profiles and acceptance criteria for restricting interaction.

## DISCUSSION OF PRIOR ART

There are many systems that allow users and groups of users to interact with each other.  
20 Electronic forums such as electronic mail, voicemail, USENET newsgroups, web-based discussion boards, and online multi-player gaming services all have such facilities. But none of the systems gives users individualized acceptance criteria for locating high quality matches with other users. Each forum is created with a particular subject or objective in mind, and beyond that all users must follow the boundaries of that forum. It is strictly a "take it or leave it" proposition  
25 to the user. There is little opportunity for a user to personalize the forum to meet his own needs.

With electronic mail, users must know the email addresses of those they want to contact. Electronic mailing lists improved on this for group communication by redistributing each message sent to the list's email address out to all subscribers. All users get all messages sent to the list. But there are problems – smaller mailing lists are hard to promote and popularize while  
30 larger lists are unwieldy, tending to have many rules of use and/or a high message volume, and a high intimidation factor. In short, users have no control over which users on a list they

communicate with. An additional problem is not knowing how much email a subscription will deliver to you. One subscription may bring only a few messages per month while another one fills a user's mailbox with 50 or more messages in a single day.

One common yet inflexible division within a topic is by geographic region. Consider a  
5 hypothetical worldwide "jazz" mailing list: If a subscriber wants only to communicate about jazz  
with people in New York City, he must create a separate mailing list, such as "nyc-jazz". For  
most users, the work involved in creating and managing a list is prohibitive. Some regional  
groups may develop their own jazz mailing lists, but such lists are usually tough to advertise and  
promote. Regional lists are inflexible because they have pre-set borders, e.g., the borders of New  
10 York City. That list will not meet the needs of users just outside city limits who may have a lot  
in common with those near them just inside city limits, but little in common with those across  
town. Each user's needs are different and yet the current mailing list systems are inflexible in  
allowing users to express their needs and wants via customization.

Similarly, there is much work involved in forming a neighborhood mailing list. If  
15 someone in a particular neighborhood wants to communicate with neighbors, there are many  
steps he must take. First he must create a mailing list. Then he may determine the borders of the  
neighborhood. This is problematic if it is unclear where the borders should be, as is the case with  
many unnamed neighborhoods. And then he may advertise and evangelize the mailing list to  
build subscribership. Since most neighborhoods do not have any channel for information  
20 distribution (such as a printed newsletter), this is a daunting task.

To extend the example, different people have different wants and needs even within  
geographically regional communication. In Fig. 1, one person (A) may want to exchange email  
with others within a one mile radius of him. A second person (B) may only want to exchange  
email with those on his block. A third person (C) may want only to exchange email with folks in  
25 one direction from his house. However, there is currently no way for users to express these  
desires to control their participation in a mailing list.

There are countless meaningful acceptance criteria that would benefit users. Consider a  
parenting mailing list. In general, once a mailing list is formed, it tends to develop its own scope  
of interest. In this example, the parenting list may develop a very strong trend of discussing  
30 infants and toddlers. This can be very limiting for a subscriber who wants to discuss teenagers.  
That subscriber must delete many unwanted messages and may simply unsubscribe from the list  
in frustration. She may consider a search for a better list, or she may consider starting a separate

mailing list for parents of teenagers, but again the barrier to entry is high. Since the mailing list system cannot leverage information about the ages of children each subscriber is interested in, it cannot deliver to her just those messages about teenagers.

5 In online gaming, such as "Yahoo! Games", users are able to rendezvous with other users to play multi-player games, such as the card game "hearts". The service provider will often divide the players into several forums based on ability, such as beginner, intermediate, and advanced. But it does not allow users to specify other acceptance criteria, such as personality, computer speed, or amount of "chat-style" conversation they want to engage in during a game. Thus users must either live with low quality match-ups or resort to trial and error, quitting games  
10 in the middle, in a search for the characteristics they want in the game. Again the user's only choice is "take it or leave it."

A number of email based news and information services such as InfoBeat provide customized messages to their subscribers, but the messages are only sent by the service itself, not by other users. It is meant for automated information delivery, not interpersonal  
15 communication and interaction.

Dating services and employee-employer matching services use criteria and profile information to match people together, but they use those results only for one-on-one communication. They have not used matching technology for group communication in which each user has their own personalized group.

20 Although the discussion here has been principally of the interaction provided by electronic mailing lists, other group forums such as USENET newsgroups, web-based discussion message boards, and online gaming rendezvous are alternatives that exhibit similar problems.

Thus, a method is needed for creating high quality interactions within electronic forums.

## OBJECTS AND ADVANTAGES

25 Accordingly, several objects and advantages of the present invention are:

- (a) Creates personalized, tunable groups for users, using profile data and acceptance criteria they specify. This fundamental novelty greatly empowers and enriches the quality of their communications.
- (b) Greatly reduces the quantity of electronic forums such as electronic mailing lists, by making  
30 possible a small number very broad forums within which users can create their own niches. For instance, a single jazz mailing list can serve the entire world.



- (c) Allows users to very easily create discussion niches of meaning to them. They may want to only email with other senior citizens, or only with those in their city. In the parenting example given earlier, each user could specify the children's age range they would like to discuss. The resulting mailing list is tuned to each user's needs, and gives them a much higher quality of interpersonal contact.
- (d) Provides a way for meaningful groups to form automatically, such as neighborhoods.
- (e) Provides a way of filtering archived information provided by subscribers into individualized archives. This includes email archives as well as other information such as recommended businesses and web sites.

Additional objects and advantages are to benefit society by creating and uniting a huge number of niche groups, and to meet a compelling and immediate user need to customize email list communications according to individual profiles. By dynamically matching each user's profile and acceptance criteria to others, the system creates a customized group for each user, enabling groups to form automatically.

Users need a fluid, flexible, and expressive means of controlling their interactions with others. They need to be able to drastically increase the quality of communication, while controlling the quantity of it. This invention enables these users to customize their communications and interactions.

Further objects and advantages of my invention will become apparent from a consideration of the drawings and ensuing description.

## DESCRIPTION OF DRAWINGS

Fig. 1, shown above, is an example of neighborhood residents with different needs.

Fig. 2 is an overview of use of the present invention.

Fig. 3a is an overview of the invention's system's database.

Fig. 3b describes the data flow to and from the system servers.

Fig. 4a is an example of a user interface for subscribing to a mailing list.

Fig. 4b is a flowchart of the user subscription process.

Fig. 4c is a flowchart depicting the process for determining subscriber match-ups.

Fig. 4c-ALT1 is an alternative flowchart for determining subscriber match-ups.

Fig. 4c-ALT2 is another alternative flowchart for determining subscriber match-ups.

Fig. 5 is an example of users sending email messages to the mailing lists.

Fig. 6a is a flowchart of the message distribution process to mailing list subscribers.

Fig. 6a-ALT1 is an alternative flowchart of the message distribution process to mailing list subscribers.

Fig. 6b is a flowchart depicting how a data set is compared to an acceptance criteria set.

Fig. 7 is a flowchart of an alternative embodiment in which the user reads messages in a web-based discussion forum.

## SUMMARY OF THE INVENTION

The preferred embodiment for the present invention uses exchange of electronic mail as its medium. The detailed description to follow will focus on an electronic mailing list system in which subscribers identify acceptance criteria for engagement and then benefit from the ensuing interaction. It will be clear to those skilled in the art that there are many alternative electronic forums in which the invention could be applied. These include, but are not limited to, voicemail, instant messaging, videoconferencing, online chat, web-based discussion boards, USENET newsgroups, online gaming, online gaming rendezvous, and unified messaging.

Although the discussion here focuses on the internet network for its preferred embodiment, obviously any automated means for group communication may be used for the present invention.

## OVERVIEW OF USE:

Referring to Fig. 2—Overview of Use, the numeral 200 generally refers to an overview of the use of the present invention. In block 202, a service provider using the invention initializes the system for the first time. The service provider initializes a database, or a dedicated part of a database, on a database server available to both an email server and a web server. This is done using a database system, consisting of a schema, data, and a Database Management System (DBMS). The database system is a product such as those from Oracle or Sybase. Then the service provider sets up the email server to receive and send email on the internet. Next they set up the web server to allow subscribers access to the web site via the internet. The database server, email server, and web server each contain a portion of the present invention. In the preferred embodiment the servers are separate, but alternatively their functions could be combined into fewer servers or expanded to more servers.

In block 204, the service provider creates one or more electronic mailing lists by adding mailing list records and related records to tables in the database. This is accomplished using a method provided by the database system.

At block 206, the service provider advertises through any known channels they choose, such as print media or web-based ads, to attract customers to subscribe. At block 208, users visit the web site and subscribe to mailing lists, specifying acceptance criteria that control with whom and about what broad topics they wish to interact. The system stores their subscription information in the database. At block 210 users begin sending email messages from their computers across the internet to email addresses dedicated to the mailing lists they subscribed to at block 208. At block 212 the email is delivered across the internet to the email server. The server determines which mailing list subscribers within the list's subscriber base should receive the email message. It does this by doing a two-way match between the sender and each recipient, using profile information and acceptance criteria previously provided by subscribers. It then distributes the email message across the internet to the matching subscribers. Block 214 describes the end result of the process: users exchange high quality messages with other matching users, and sub-groups form automatically within the mailing list.

To sum up the functionality, consider the following example. Suppose a user sends a message about a problem at his child's school to the system for distribution. He addresses it to the email address for his local neighborhood mailing list, at the service provider's email server, e.g., neighbors@local2me.com. This mailing list has been set up in advance by the service provider. He also selects the predefined topic "School" from a list of topics defined by the service provider. The email server retrieves his personalized distribution list from the database. This describes the other subscribers he forms a two-way match with. That list is pared down, removing subscribers who don't want messages on the topic "School". His message is then sent out to the pared down list, resulting in a satisfying interaction with all the right people.

Turning to FIG. 3a—System's Database, numeral 300 generally refers to a description of the database schema and relationships between entities (Entity/Relationship diagram). The database in this preferred embodiment is a collection of tables of information, as is typically stored in a database product such as Oracle. In the diagram, relationships between tables are shown with '1' or 'n', as will be familiar to those skilled in the art, to indicate the relative number of related records between each pair of tables.

In the description below, we refer to a database record's (or table row's) unique ID. This is also commonly called "Row ID", "Record ID", "Object ID", or "OID" by those skilled in the art, and is simply a unique identifier for each row in a table.

5 At block 302, the users table (also referred to as the "base user profile table") contains a collection of base user profile records. These are records that contain base information about a user, such as name and email address, separate from their subscriptions. Each record also contains a unique ID. In this preferred embodiment, there is only one base user profile per user.

10 At block 306, the subscriptions table contains one record for each subscription entered. Each user can have multiple subscription records, for instance subscribed to a jazz mailing list and a neighborhood mailing list. The subscription table contains the unique ID and unique username of the subscribing user. It also contains the name of the mailing list the subscription is for. Another field allows the user to give the subscription a descriptive name. The table also contains subscription user profile data, which is profile information about the given user specific to this subscription. This information is stored in integers and strings – 10 of each type of variable are allocated. Similarly, there are data fields for user profile acceptance criteria ("pcriteria") describing what this user requires of other users, and message acceptance criteria ("mcriteria") describing what this user requires of messages he receives. The data in each of these profile and acceptance criteria fields varies between mailing lists. The fields can be interpreted by examining the Subscription Template table, discussed below.

20 The term "user profile" is used here and below to refer to the combination of both a user's base user profile and the subscription user profile. Base user profile is collected once when the user first registers at the service provider's web site. But the subscription user profile is extra profile information needed just for a particular mailing list – it is collected when the user subscribes to a particular list. The term "user profile acceptance criteria" refers to acceptance criteria related to both the base user profile and the subscription user profile.

25 At block 316, the mailing lists table contains a record for each mailing list in the system. The service provider, using an access method provided by the database system creates these records. Each record contains a user-presentable name and an email address for the mailing list.

30 Block 318 refers to the Subscription Template table. This meta-information describes the profile and acceptance criteria information needed from each user for each mailing list. It also describes where the profile and acceptance criteria data are stored in the subscription table, and what profile information each acceptance criterion refers to. Each row correlates to one piece of

profile or acceptance criteria data. A unique ID is available for each record. List name is the name of the mailing list. Item name is the name of the item. Category describes the type of template this is: user profile, user profile acceptance criteria, message profile, or message profile acceptance criteria. Data type describes the type of data being collected. The restrictions field describes any restrictions for data entry (e.g., a number between 1 and 10). Prompt is a text string to use when collecting profile or acceptance criteria data from the user. Store\_in\_col describes what column in the subscription table provides storage for this data when collected from the user. Store\_in\_col also describes what column in the email messages table provides storage for this data when an email message is stored. Applies\_to\_table and Applies\_to\_column are only used for acceptance criteria entries in the table. (Not used for profile template entries.) They describe what profile data the acceptance criteria applies to. Applies\_to\_table selects the database table of the profile data that the criteria applies to. This could be either the subscription table, the user table, or the email message table. Applies\_to\_column identifies the column of interest within that table.

Profiles and acceptance criteria are closely related. The system compares acceptance criteria to profiles to determine subscriber and message matches. A profile may contain a field that describes a single data point, such as geographical location, age, or occupation. The corresponding entry in the acceptance criteria may be a range of such data points, such as a geographical area, age range, or set of selected occupations.

At block 320, the Matches Table keeps track of which subscriptions are matched to each other. Each row keeps a simple relation between two matched subscribers. Two subscription unique ID's are stored in each row. A union of searching both columns for a given subscription's unique ID yields the full set of matching subscriptions for the given subscription. This table is used so that the time-consuming matching calculation can be done only when needed, with the results stored in this table for quick access.

At block 322, the email archives table is an additional feature to keep an archive of email messages previously processed and distributed by the system. This will be used to give users an estimate of email traffic when they are about to finalize a subscription process, and to allow users to browse the archives via a web interface. A unique ID is available for each record. The sender's subscription unique ID links a message to the sender. Msg\_profile1\_int to msg\_profile10\_int and the similar string profile fields store data describing the profile of the message (e.g., topic category is 'recommendations'). These correlate to the message criteria

stored in subscription records. The email message content is stored separately in the server's filesystem and its filepath is stored in the DB record.

Turning to FIG. 3b—System Servers' Data Flow, the numeral 340 generally refers to the flow of data between users, the email & web servers, and the database server. At block 342, multiple users are depicted on a geographical map. At block 344, the users interact via an internet web protocol 344 with a web server 346. The web server 346 is software and/or hardware for traditional web serving, plus a portion of the present invention for interacting with users via the web. The web server 346 interacts with a database server 348. At block 352, the users 342 use an internet email protocol to interact with an email server 354. Email server 354 is software and hardware for traditional internet email handling, plus a portion of the present invention for interacting with users via email. The email server 354, like web server 346, has access to database server 348. After processing, email server 354 distributes each message out to via block 352 to multiple users 342. Note that email server 354, web server 346, and database server 348 are three distinct computer systems in this preferred embodiment, but could alternately be combined into fewer computer system or split into more computer systems.

Referring to FIG. 4a—Example Subscription User Interface, the numeral 208 generally refers to a depiction of an example of a subscription user interface generated by the system and presented to the user as a web page. Numeral 402 denotes a section collecting subscription user profile data. Numeral 406 denotes a section collecting user profile acceptance criteria. Numeral 408 refers to some subscription user profile acceptance criteria, to be compared against subscription user profile data. Numeral 410 refers to some base user profile acceptance criteria, to be compared against base user profile data. Numeral 412 denotes a section allowing the user to specify message acceptance criteria. Subjects 414 and Content Search 416 are two examples of different kinds of message acceptance criteria that can be compared against the content and profile of an email message.

Referring to FIG. 4b—User Subscription Process, the numeral 208 generally refers to a process of signing a user up for a particular mailing list with the service provider, specifying profile acceptance criteria data, and storing the subscription.

At block 442, the user goes to a web site utilizing a portion of this invention. At block 443, the web server ascertains whether the user is known to the service, or a new user. If he is known, processing moves to block 445. If he is not known, the server proceeds to block 444 and presents the user with a new user registration screen. Upon providing information such as name,

address, email address, age, and occupation, the server stores the base user profile record in the database.

At block 445, the server presents to the user a set of web pages representing a collection of available mailing lists. The user selects a mailing list of interest and indicates via a user interface that he wants to subscribe to it. At block 446, the server retrieves the mailing list record and related template records from the database. It uses these to build a subscription form, and presents it to the user. At block 447 the user fills out the subscription form, specifying his profile acceptance criteria for the subscription.

At block 448 the server analyzes all subscription records in the subscription table to locate the records for users already subscribed to this particular mailing list. It selects the subscribers who form a two-way match with the new user. A match is defined to be when a subscriber X's acceptance criteria indicates he wants to email with another subscriber Y, and when Y's acceptance criteria indicates he also wants to email with X. This critical step of two-way matching is one of the foundational points of the process, and is described in detail in FIG.

In an alternative embodiment, both users do not have to mutually agree on interaction. Their user profiles do not both need to match each other's acceptance criteria. Even if user X does not want to receive message from user Y, in the alternative embodiment user Y may choose to receive messages from user X if all of Y's acceptance criteria are met. Acceptance criteria may include a plethora of different choices, including location, age, sex, hobbies, skills, preferences. While patent #5,555,426 by Johnson et al describes a method and apparatus for message dissemination that is based on recipient's acceptance criteria, its intent and focus are on simple topic keywords and sender identities. It did not comprehend the use described here. The scope of the present invention includes much more comprehensive acceptance criteria with a significantly different intention, result, and benefit for the users, not suggested by the Johnson patent.

At block 449 the system determines email traffic this subscription would have received in the recent past. This is very useful to give users feedback on the volume of email they will receive. It does this by matching the new subscriber's message acceptance criteria to the email archives table in the database for the matching users determined in block 448. The search is further constrained to messages sent to the mailing list of interest. The matching process used is the same one that is described in more detail below, in FIG. 6a, blocks 616-624.

In an alternative embodiment, in block 449 database sampling or a similar technique known to those skilled in the art is used to provide an estimate more quickly.

At block 450 the system gives the user a web page of information about the email traffic associated with the subscription the user has specified. That information includes sample subjects, and statistics on the volume of recent mail. At block 451 the user chooses whether to accept the subscription as specified or return to block 447 to further refine it.

At block 452 the server stores the subscriber match-ups determined in block 448 in the matches table. They will be used later as the subscriber's personal recipient list for sending out messages. At block 456 the server stores the subscription record in the database. Block 458 ends the process. Block 460 is only a symbolic reference to the next phase of the use of the present invention, when subscribers begin sending email messages out to their groups.

In an alternative embodiment, the user can subscribe to a list dynamically at the time of sending a first message to the list. In that case, the subscription data and possibly the user profile data would be sent via email or other means along with or just ahead of the first message. The subscription feedback steps of the current process (blocks 449-451) are skipped, and the first message is delivered in accordance with FIG. 6a and the related description below. The subscription may either be stored in the database, or if it is a transient subscription ("one-shot thread" subscription), simply associated with the single email message and not stored in the subscription table. In this latter case, replies to this message back to the mailing list would reach the original sender, but other messages to the mailing list would not.

To summarize by way of example, suppose a user decides to try out a mailing list that uses this invention. He signs up at the service provider's web site, selecting an investment mailing list. He specifies (user profile acceptance criteria) he would like to interact with other men of age 40-50 who live within three miles of him and do not have children. He selects the subtopics (message criteria) related to internet stocks, junk bonds, and international mutual funds. The system responds with a preview of 38 matching subscribers and five messages per week. He wants more people to interact with, so he increases his age criteria to include men between 35-55. He also increases his distance criteria to five miles. Now the system matches him with 68 people and 12 messages per week, and he accepts the setup. The system stores that subscription; soon he will begin interacting with his matched subscribers.



## USING ACCEPTANCE CRITERIA TO DETERMINE SUBSCRIBER MATCH-UPS:

Turning now to FIG. 4c—Determining Subscriber Match-Ups, the numeral 448 generally refers to a process of using user-specified acceptance criteria to determine subscriber match-ups. The overall process here is to find all subscribers who form a two-way match with a new subscriber. A two way match is when user X's acceptance criteria indicates he wants to interact with user Y, and user Y's acceptance criteria indicates she wants to interact with user X.

In FIG. 4c, a new subscriber's subscription record is given as input. At block 474, the server starts by retrieving a subscriber list for the mailing list from a database query. At block 476 the server gets the first subscriber on the list, termed here the "prior subscriber". At block 478 the server tests whether the new subscriber's user profile meets the prior subscriber's user profile acceptance criteria. If so, the process proceeds to block 480, where it applies another test: whether the prior subscriber's user profile meets the new subscriber's user profile acceptance criteria. If this test is also successful, then at block 482 the prior subscriber is added to a list of match-ups being built by this process. If this test fails, or if the test at block 478 fails, or after processing at block 482, processing proceeds to block 484. At block 484, the server tests whether there are more subscribers in the list obtained in block 474. If there are, then at block 486 the server gets the next subscriber and returns to block 478 to continue processing. If there are no more subscribers to assess, processing ends at block 488 when the match-ups list is returned to the super-process.

An alternative embodiment to FIG. 4c is FIG. 4c-ALT1 - Determining Subscriber Match-Ups. In this embodiment, an SQL query approach is taken. Block 448 again generally refers to a process of using user-specified acceptance criteria to determine subscriber match-ups. At block 490, the query conditions string is defined to be empty, to begin building a complex query. At block 491, conditions are appended to the query to select only subscriptions from the subscriptions table that are subscriptions for the target mailing list. Block 493 adds the condition that selects subscribers who match the new subscriber's acceptance criteria. Block 494 adds the condition that selects subscribers who will accept the new subscriber, per the new subscriber's user profile. At block 496, the query is sent to the database server. The result back from the database server is a list of subscribers matching all of the conditions. At block 498 the system

returns the matched subscribers to the super-process, completing the task of determining matched subscribers.

Another alternative embodiment to FIG. 5c is FIG. 4c-ALT2 – Determining Subscriber Match-Ups. In this embodiment, the matching is done through multiple computers operating as a distributed system. All communication between computers is through a standard means such as CORBA. A Match Dispatch Server computer distributes the matching process across a cluster of Match Servers. Each match server handles part of the total number of subscriptions in the system. Each match server keeps its own cached copy of the database data for high-speed access during the matching process. To conduct a match, a client sends a match request to the Match Dispatch Server (“dispatcher”). The dispatcher has a lookup table describing which Match Servers are needed to compute a particular match. The dispatcher returns a list of Match Servers to use in completing a dynamic match. The client then requests those match servers to perform partial matches, and the results are combined for the final answer. The lookup table is centralized on the dispatcher system. Data changes (e.g., from a user tuning his community settings on the web site) will first be stored in an SQL database, and then updates distributed to appropriate server(s). Although FIG 4c.ALT2 only shows a single dispatcher, multiple redundant dispatchers may be used.

Referring to FIG. 5—Users Send Messages To Mailing Lists, the numeral 210 generally refers to an example of subscribers sending messages to the mailing list email address for distribution to other matching subscribers within the list. Block 502 is an example of a message sent to “neighbors” mailing list, and block 504 is a response from one of the subscribers who received the original message.

#### PROCESS OF DISTRIBUTING ELECTRONIC MAIL MESSAGES:

Referring to FIG. 6a—Message Distribution Process, the numeral 212 generally refers to a message distribution process, wherein an email message sent by a subscriber is distributed to a subset of subscribers who match the sending user and his message.

At block 602 a user initiates the process by sending a message to a mailing list via his email software. The first line of the body of the message contains keywords in brackets to specify the message’s profile (e.g., “[for sale]” or “[school]”).

In an alternative embodiment, the user sends the message using a form accessed at the service provider's web site. The form includes checkboxes, etc, for the user to specify the message's profile (e.g., this message is about subject "for sale"). In this case, the web server then passes the message directly to the email server for processing. In another alternative  
5 embodiment, the user uses a rich HTML email template which includes checkboxes and other user interface to specify the message's profile. That information is then returned to the service provider for processing.

At block 606 the system determines the sender's email address and checks the database to be sure the message is from a subscriber of the specified list. If she is not a subscriber,  
10 processing proceeds to block 610 where the message is rejected and returned to the sender, and processing stops at 612.

If block 606 succeeds, then processing continues at block 609, where the system tests whether the message meets the sender's message profile acceptance criteria. This is to make sure that the sender is not distributing a message which she herself would block based on message  
15 profile acceptance criteria. This step is considered in depth below in FIG. 6b, starting at block 609. An example of when this happens is when the user is not accepting "for sale" topics, but sends out a message with a "for sale" message profile. If the message does not meet the sender's message profile acceptance criteria, then in block 610 the message is rejected and the process ends at block 612. If the message meets the acceptance criteria, then processing continues at  
20 block 614.

In an alternative embodiment, a user can distribute a message which does not match her own message profile acceptance criteria. In this case, block 609 is skipped and processing continues at block 614.

In block 614 the system retrieves the recipient list from the matches table. In block 616 it  
25 gets the first recipient on that list. In block 618 the system tests whether the message profile meets that recipient's message profile acceptance criteria. This step is considered in depth below in FIG. 6b, starting at block 618. If the message meets the recipient acceptance criteria, then at block 620 the recipient is added to a message distribution list being built by this process. At block 622 the system tests for whether there are more subscribers to process, and if so proceeds  
30 at block 624 to get the next recipient and loop back to 618 for further processing. If there are no more subscribers, then at block 628 the system distributes the message to the just-built message distribution list via the internet.

In an alternative embodiment, each email message is sent individually in block 620 rather than building the message distribution list and sending them all at once at block 628.

At block 630 the email message, along with its message profile, is stored in the email archives table in the database. Processing terminates at block 612.

5 An alternative to FIG 6a is FIG. 6a-ALT1 — Message Distribution Process. In this alternative embodiment, blocks 614-624 of FIG. 6a are replaced by blocks 674-676 of FIG. 6a-ALT1. Other than that the diagrams and process are identical. In block 674, a database query is performed to determine matched subscribers, rather than using a the pre-calculated matched subscribers stored in the matches table. This would be completed in the same way as previously shown in FIG. 4c or FIG. 4c-ALT1 and the accompanying description. In block 676, the  
10 resulting list is pared down by removing subscribers whose message acceptance criteria indicates they don't want to receive this message.

#### 15 DETAILED METHOD OF SELECTING SUBSCRIBER INTERACTIONS:

At the heart of the present invention is the use of subscriber acceptance criteria for selecting subscriber matches for interaction within a group. This was covered at a higher level in FIG. 4c, and will now be discussed in depth.

Referring to FIG. 6b—Comparing Data Set To Acceptance Criteria Set, the numerals  
20 478, 480, 609, and 618 generally refer to the process of determining whether a piece of profile data record matches an acceptance criterion. This process is used either for comparing user profiles to user profile acceptance criteria, or for comparing message profiles to message profile acceptance criteria. In order to form a match between two subscribers, each subscriber must match the other's user profile acceptance criteria and message profile acceptance criteria. When a  
25 message is sent to a mailing list, this process is used several times to determine whether a sender and each potential recipient form a match.

At block 653, the system gets the first acceptance criterion to test. At block 654 the server locates the profile data field that matches the current acceptance criterion, if any. The field data may be of one of a number of different data types, such as text strings, numbers, dates,  
30 geographical locations, references to entire other acceptance criteria records, or lists of any of the aforementioned types. The associated acceptance criteria are generally ranges of field data, e.g., number range acceptance criterion for number profile data, geographical area of interest

acceptance criterion for geographical location profile data, etc. Methods for representing such data types and the type information itself are well known by those skilled in the art. Geographical distances, such as the distance between two locations, will be determined by using an established outside process, such as a service or product produced by a map data company (e.g., Etak). For purposes of this discussion, the implementation will focus on text strings, lists of text strings, and references to other acceptance criteria records, as those types will suffice to exemplify key points of the invention.

There are exceptions to the processing at block 654. If the acceptance criterion is targeted for the message itself, then the message becomes the data to compare against. If the acceptance criterion is a reference to another subscriber's acceptance criteria, then the entire profile data set becomes the data to be tested against the referenced entire set of acceptance criteria.

At block 655 the system compares the acceptance criterion to the data field. In general, the comparison must find an intersection between the acceptance criterion and the profile data field. If the data field is a text string, then the acceptance criterion and the profile data field must match exactly in order to proceed to block 657. An additional feature would be to associate with the string a match descriptor which would select one of a number of comparisons well known in the art, including exact match, starts with, ends with, contains, and arbitrary complex search predicate.

If the field data is a list of text strings, the system determines whether there is any intersection between the acceptance criterion's text string list and the field data's text string list.

The field data type may alternately be a reference to another acceptance criteria database record. This case is discussed separately below.

If there is an intersection, then the test succeeds and processing moves to block 657. If it fails, then in block 656 a rejection is returned as the result of the procedure -- the comparison has failed. At block 657, the process checks for additional acceptance criteria to test. If there are no more acceptance criteria, the process concludes at block 658 with a result of accepted and the procedure terminates. If there are more acceptance criteria, the system continues to block 659, where the next acceptance criterion is retrieved. The system then returns to block 654 for another iteration of analysis.

# SUBSCRIBERS USING EACH OTHERS' ACCEPTANCE CRITERIA:

A somewhat more esoteric but very powerful feature is that of allowing subscribers to have within their acceptance criteria references to other subscribers' acceptance criteria. This is a way for subscribers to use each other's acceptance criteria. There are many uses for combining acceptance criteria, with some "real world" parallels. For instance, when musicians form a band, it is often through a process of beginning with each individual's acceptance criteria, testing whether there is common acceptance criteria that makes sense, and then finally combining their acceptance criteria.

In the example below, three subscribers B, C, and D are in different locations and are of different ages. They have met in a "travel" mailing list, and decide to form a discussion niche within the list. The subscribers add references to each other's acceptance criteria to their records. Their relevant profile and acceptance criteria data are:

Subscriber	Location	Acceptance criteria for others' locations	Age	Age Criteria	Other Criteria Records
B	Brazil	California or Denmark or Brazil	20	23-33	C, D
C	California	California or Denmark or Brazil or Germany or New York	26	20-30	B, D
D	Denmark	California or Denmark or Brazil or Venezuela	23	20-27	B, C
Resulting "Outsider" Acceptance criteria	N/A	California, Brazil, or Denmark	N/A	23-27	N/A

Each subscriber has previously specified location acceptance criteria and age acceptance criteria that match the other two subscribers. To form a group, these three subscribers specify to the system to use each other's acceptance criteria.

Before doing this, the subscribers B, C, and D would each be matched with some other subscribers on the mailing list, which the other members of B-C-D weren't matched with. By

incorporating each others' acceptance criteria they all exclude those other subscribers who do not meet all three sets of acceptance criteria.

In the preferred embodiment, a subscriber's profile acceptance criteria are never used on that subscriber. Since that subscriber's acceptance criteria are his acceptance criteria for others and not for himself, it is not applied to him. Referring to our previous example, subscriber B is 20 years old, but his acceptance criteria for others is age 23-33, which doesn't include himself. Thus when a second subscriber uses a first subscriber's acceptance criteria, in the preferred embodiment he does not apply that acceptance criteria to the first subscriber when determining interaction participants. Also in the preferred embodiment, referenced acceptance criteria are referring to the combination of a subscriber's user profile acceptance criteria and message profile acceptance criteria. Alternatively, the two types of acceptance criteria could be referenced and used separately between users.

When B combines C's and D's acceptance criteria with his own, the resulting acceptance criteria an "outsider" then has to meet is the intersection: California or Denmark or Brazil, and age range 23-30. The combined outsider acceptance criteria has a modified age range of 23-27. Thus, when determining a subscribers' recipient list for a message, outsiders from this group would have to match all of B, C, and D's acceptance criteria in order to exchange email with any of them. If a fourth "outsider" subscriber "E" from Denmark, age 30, looks for interaction matches in the subscriber list, B, C, and D will not match because of their references to each others' acceptance criteria. Since D's age acceptance criteria excludes E, E doesn't match any of them.

An acceptance criterion reference to another user's acceptance criteria can be thought of as a container. Each acceptance criterion inside the referenced user's acceptance criteria set must be checked. Thus, the system would perform the entire acceptance criteria process described in FIG. 6b to compare the new set of acceptance criteria against the given data set. The system must allow for the possibility of circular references to avoid an "endless loop"; techniques for handling this are well known to those skilled in the art.

Since any one user's changes to his criteria impact everyone in the group, the system provides two types of groups: "democratic" and "dictatorial". In a democratic group, the system notifies users of any proposed criteria changes, and users have the opportunity to discuss and vote before changes go into effect. In a dictatorial group, one or more of the users are in charge, and approve all criteria changes through a mechanism provided by the system.

## DESCRIPTION - ADDITIONAL ALTERNATIVE FEATURES

One additional feature would be to allow users the option of specifying a subscription expiration date. The system stores the expiration date in the subscription field. The system  
5 periodically checks the subscriptions table for expired ones. It notifies the user of an expired subscription via email that his subscription has been deleted.

Another feature is to give the subscribing user feedback at subscription time on the identities and/or other info about what subscribers he has been matched up with. This may include email addresses, geographical data such as a graphical map indicating locations of other  
10 users.

Another feature is a way for users to be hidden from being revealed to a sender as potential recipients of a message. Some users may desire privacy, and this feature would restrict the processes described herein from revealing that user's identity or other information. The processes are simply modified to maintain privacy of these users.

15 Another feature is to allow a user to exclude particular subscribers and subjects from his interactions. Excluding subscribers is similar to chat's "ignore user" feature and is implemented by allowing the user to enter email addresses or user names of users to be ignored. The subscriber match-up process described in FIG. 4b, block 448 is modified to ignore the specified users. The user can also exclude subjects by entering a search string on the subscription tuning  
20 web page. The search may be a simple search or complex search predicate. The process at FIG. 6a, block 618 is modified to screen out the ignored subjects.

Another feature is for the service provider to be able to exclude certain trouble-maker users or groups of users (e.g., hate groups) from the system.

25 Another feature is a way for users to volunteer to moderate a discussion. A moderator acts as a human filter for inappropriate messages, scanning for "spam" and other messages that shouldn't be sent to the subscribers. A user can only moderate messages she receives through her subscription and she only moderates messages for users that are on her recipient list. A user volunteers on her subscription tuning web page. If in this preferred embodiment there are more than three active moderators, this user is offered only to be put on a moderator wait list. But if  
30 there are less than three moderators, this user is considered. There may then be a process of requesting an email vote of approval from the other subscribers this subscriber interacts with. If a vote is taken, the volunteering is only allowed if that vote comes back substantially positive. Her subscription record is then flagged with a volunteer moderator flag. During message



processing, as shown in FIG. 6a, moderators within the recipient distribution list are located and one or more of them is emailed a request to approve the message for distribution. The message is stored in a suspended messages table in the database along with its distribution list until an approval or rejection is returned. If the message isn't approved or rejected after 5 days, it is removed from the database and returned to the sender. If a moderator approves the message, it is then sent to the distribution list. If it is rejected, the sender is informed via email. In either case the message is then removed from the suspended messages table.

A variation of the above is a feature to allow the user to specify "ignore moderator." This allows the user, if so desired, to receive all messages regardless of the moderator. Another variation is to allow each user to select from one or more available moderators which moderator he wants, if any.

Another feature is to allow the acceptance criteria to include a complex search predicate, an example of which is "recommend\* OR 'for sale' OR (city and police)". Processes for applying such a search predicate are well known by those skilled in the art. This search could be applied to the message subject and/or content, to the user profile, or to the message profile.

Another feature is to allow more advanced geographical location matching against acceptance criteria. A mapping product or service is used to recognize street addresses and allow users to specify geographical areas, such as zip code, neighborhood name, city, county, state, region, or an outline drawn on a graphic image of a map. Thus a user can specify the exact geographies of interest, and the system can match users based on street addresses and geographies. Alternatives to street address data are the use of street intersection, GPS coordinates, longitude and latitude. If the location is not a specific point, but rather an area, a user would be considered to be generally within that area, and would match another user's geography of interest if the two areas intersected.

Another feature is to allow users to maintain the privacy of their geographical locations by using a small geographical area, such as a 1/2 mile radius around the user's house, in place of an exact location. This reduces the chance of another user being able to pinpoint someone's exact location. The system would allow the user to specify this as part of their base user profile. It would consider the base user profile data to match another user's location acceptance criteria if the geographies intersected.

Another feature is allowing two or more subscribers of a particular list to form a group, agreeing to share acceptance criteria as previously discussed. Each member of the group agrees

to apply each other member's acceptance criteria to everyone except that other member, also previously discussed. Any member can form a group by selecting a user interface element on the web page for their subscription. The system asks them to name their group, and keeps track of a list of group members within the group's record in a group table in the database. The founding subscriber and anyone else he specifies become the controllers of the group. They must approve all new members via an email or web-based approval mechanism. Then as each member is admitted to the group, each of the group members' subscriptions are recalculated as previously discussed, to update all subscribers' recipient lists based on the change to group acceptance criteria. Note that recipient lists of subscribers not in the group are also affected. Whenever a group member changes his acceptance criteria, other group members are notified and the group leader(s) must approve the change or expel the changing member from the group. The group will still interact with users outside the group, but only with users that form a mutual acceptance criteria match with the compound group acceptance criteria. Alternatively, the group can simply lock out all non-members from all communication.

Another feature is to allow acceptance criteria sets outside the scope of a particular subscriber to be used optionally by each subscriber or enforced upon all subscribers. The service provider could set up acceptance criteria that is associated with an entire mailing list, that specifies that all users must be inside the United States for the list. Or a member or the service provider may design an acceptance criteria that when applied rids the system of certain kinds of unwanted commercial email. In either of these cases, or any other similar case, the system allows acceptance criteria to be named and stored in the database, and for any user to add that acceptance criteria by reference into their own acceptance criteria for a subscription.

Another feature is to have the email delivery process control the delivery of reply email messages in a different manner. Replies to an email message go to the distribution list of the original message, rather than the replying subscriber's distribution list. This keeps a discussion with the same group of users, with the potential down-side of some users interacting with each other who don't usually interact. The system stores the email message in the email archive table. It then stores in the database a relationship between the email message sent and the distribution list the message was sent to. The unique ID of the email message's database record is then encoded in the "To:" header field of the email message, e.g., "To: neighbors-1354321@local2me.com". When someone responds to the message via their email client's reply all feature, the message is addressed back to that To header field, including the encoded unique

ID. When the message arrives at the server, the message is recognized as a reply to an original posting, and the unique ID is extracted from the email address (1354321 in the above example). It then uses the stored distribution list associated with the unique ID, rather than the sender's distribution list, for distribution. The step of checking each recipient's message acceptance criteria is skipped because the stored distribution list has already done that. The message is then sent to the distribution list. An alternative approach is to have the reply go to the replying subscriber's distribution list, but add some text at the bottom of the message for anyone getting the reply who did not receive the original message it was a reply to. That additional text would be a link to a web page showing the archives of the referenced email message(s).

Another additional feature allows a user to override subscription settings when sending a message. The subscription settings are treated as "default settings", and the user can override any of the settings when sending a message. The user could specify this through additional codes in his email message body, or by using a web form when sending the message. The web form would include access to override those settings. The subscription match-up process described in FIG. 4c and its related text are used to determine the distribution list for the present message being sent. The settings are not stored as the user's permanent settings. An example use is in a neighborhood mailing list for a user to send out a "for sale" message to neighbors within 10 miles of him, overriding his usual acceptance criteria of neighbors within 3 miles of him. This feature would have to exist in conjunction with the previous feature, controlling delivery of reply email messages, so that recipients can answer to the same group.

Another additional feature is to allow each list to require approval for subscription. When a user subscribes, another special "approval user" approves or rejects the subscription. This could either be for the whole list, or for a given sub-group within the list as defined by acceptance criteria. An example is a professional sub-group of a jazz mailing list. Subscribers checking the "Professional" experience checkbox would need to be approved before admittance. In this case, the subscriber is told that his subscription will need to be approved, and his subscription record is stored in a pending subscriptions table. The approval user is emailed with a request for approval. If the approval does not take place within 14 days, the subscriber is automatically rejected by the system.

Another additional feature is to install a process near the beginning of the email distribution process for eliminating unwanted commercial email ("spam"). Such systems are commercially available and are configured independently of this invention. The email server

process would allow the service provider to configure it to incorporate a spam elimination process at the appropriate step in the process.

Another additional feature is to offer users a written language preference and translation between languages within a list. A user specifies the language of choice as part of the subscription process. At email distribution time, the email server uses an external language translation process to determine the message's language. For each user whose language preference doesn't match that language, the message is translated before being sent. The translations are grouped so that a translation into a given language happens only once per message. A link to the original message enables review and possible other translations, to account for occasional poor translations.

Another additional feature is for the email server to add an additional text message to each outgoing message. This could be an advertisement or appropriate link to web site content, as determined by the service provider. The system associates header and footer text with the mailing list in the database. The service provider manages that data manually through the database vendor's manual database access interface. The email server grabs that information from the mailing list database entry at the time of message distribution and modifies the message content appropriately. Alternatively, the additional text feature may be expanded to allow for distributing different additional text to different sets of users, such as targeted ad insertion. The system associates a number of acceptance criteria sets described by the service provider with a number of additional text messages. It applies the acceptance criteria sets one by one to a copy of the distribution list, matching users to the additional text criteria. As each user is matched, the additional text is added to his message and the user is removed from the copy of the distribution list. The last acceptance criteria set is defined to be a null set, with all remaining users receiving the last additional text message associated with that last null acceptance criteria set. Thus each user receives only a single additional text message.

Another additional feature allows a user to set up an email alias preference as part of his base user profile. Then each message sent by the user to any mailing list is automatically modified to reflect his email alias rather than the original email address listed in his message. The system also shows this alias instead of his email address at any time his email address would be shown to a user at the web site.

Another additional feature is for the system to determine a user's distribution size threshold based on the user's expertise level. This would warn, for instance, a novice user before

sending an email message that would reach more than 200 recipients. The user is asked during registration to rate their computer experience level, and that experience level is matched to thresholds over which the user is warned. During message distribution, the user's threshold is checked for whether there are more recipients on the distribution list than the threshold. If there are, the system informs the user of the size of distribution and asks for confirmation. The system then either distributes the message or discards it depending on the user's response.

Another additional feature is for the system to verify a user's geographic address when a user subscribes to a mailing list requiring address verification. The mailing list record contains a flag indicating that address verification is required for subscription. When the user subscribes, the system prints a postcard addressed to the user with a special verification code. The system then stores the subscription(s) in a pending subscriptions table in the database. The service provider mails the postcard to the user via the United States Postal Service. Once the user enters the verification code at the web site, the subscription(s) are activated. Alternatively, instead of using a postcard, the system allows another subscriber of a given list (e.g., a neighbor) to vouch for the user, for the given list. In that case, the system stores the vouching subscriber's user ID in the subscription record of the new user, and subscribes the new user.

Another additional feature is to show each user individualized web content related to each of his subscriptions. The web server generates for each user a unique web home page, containing a link for each of his subscriptions. Each of those links leads to a page containing extensive subscriber-created content. The content shown is has been contributed by users matched to the viewing user. In other words, each user only sees subscriber-created content that was created by people he is matched with (and from himself). It displays email archives of messages from the subscribers who match this user's message acceptance criteria. It also displays other subscriber-created content that matching subscribers have previously contributed to the web site, such as interesting web links, recommendations (such as gardener, electrician, or restaurant), photos, calendar entries, etc. It also displays a way in which this user can add contributions to the site. All content is stored in a user web contribution table in the database. The web site also provides searching of matching subscribers' web sites, from those who have specified a web home page in their base user profile data.

Another additional feature is a periodic process that runs on the database server that performs cleanup operations. It deletes expired subscriptions from subscription table and handles other similar types of cleanup automatically. The system has a parameter that can be set up by

the service provider that defines a schedule for performing the database maintenance. It may also transfer messages older than n days to a secondary database server, or move the message bodies to secondary computer systems, to reclaim disk space. In this case, the system must account for this when accessing the email archives.

5 Another additional feature is to structure the mailing lists into a hierarchy, such that some of the subscription profile and acceptance criteria data can be shared between lists. The system can give the user feedback on the number of users who form partial matches with him based on known acceptance criteria. For instance, many lists will have a geographic distance component. By extracting that as a common setting for all of those lists, a user can specify early on in the  
10 subscription process that he wants to interact with people within two miles of him. He can then browse all of the lists that are in that part of the hierarchy, and see the number of users he is matched to in each of the lists. This gives him very helpful feedback on what lists are active in his immediate area. To accomplish this, the system establishes database relationships to keep track of the hierarchy. It also establishes default values for profile and acceptance criteria data  
15 such that partial matches can be determined with partially specified profile and acceptance criteria data.

Another additional feature is to let a user aggregate several mailing lists together into one "virtual list" for her. She is offered the option of combining two or more subscriptions into one "meta-subscription" that appears as one mailing list in her email box. An example: she wants to  
20 combine a "theater" subscription and a "singers" subscription into one meta-subscription she calls "my-arts". Incoming messages to her are then addressed to that list name. When she sends out a message, the underlying mailing lists become message acceptance criteria which she can check on or off individually to indicate which lists her message should go to. Additionally, for each list she selects, she also needs to specify message acceptance criteria within that list as per  
25 the prior discussion.

Optionally, when a message goes to several lists, recipients belonging to more than one of those lists will only receive one message (as happens today with newsgroup "cross-postings").

Another additional feature is to allow the user the option of receiving messages for a  
30 subscription on the service provider's web site, rather than in her email inbox. In this case the system keeps track of which messages she has and hasn't read, and provides a means of reading and replying to messages.

Another additional feature is to allow users to create ballots to collect votes on any subject from users they are matched to. A user describes the ballot questions via a web site user interface, and the system creates a poll and emails it out to the matched users on the mailing list. The results of the poll are tallied and available for viewing on the service provider's web site.

5 Another additional feature is to provide the user the option of a digest version of messages from a subscription. Rather than each message being delivered separately, a digest message containing multiple messages collected over a short period of time is sent out periodically. Each user specifies when to send out a digest to them, based on time, number of messages waiting, etc. The system collects messages and periodically delivers the digest to the  
10 user.

Another additional feature is to provide inexact matching, or a match score, and let users set thresholds and instructions for different levels of matching. Rather than the previously described complete match, this allows for partial matching. The matching system would assign  
15 default weights to each of the acceptance criteria, and allow the user to override and assign arbitrary weights to the acceptance criteria. The system then tallies a score during the matching process, based on methods well-known to those skilled in the art, to determine how well each acceptance criterion is matched. It then decides what to do based on the total score. The user can specify different actions, e.g., if 1000 is the best score then they might want scores of 1000 delivered via email, those between 700-999 delivered via a daily digest, and those between 600-  
20 699 delivered via daily digest summary. Scoring the extent of the match also provides the means for the user to literally "turn the volume up or down" on a subscription as a whole. He simply controls a single parameter specifying the threshold for messages to get through.

A related additional feature is to provide the user with a way of expressing the volume of email he desires, and then adjusts the score threshold to approximate that volume of traffic.  
25 Likewise, the user and/or service provider might want to limit the size of messages (avoiding binaries, pictures, etc.).

Another additional feature is to use more advanced ways of matching acceptance criteria to profile data, such as fuzzy logic, artificial intelligence techniques such as discrimination nets, etc. These are techniques well-known to those skilled in the art, and can readily be applied  
30 within the scope of the present invention.

Another additional feature is a billing mechanism wherein certain "high value" lists are accessible for a fee based on a variety of pricing models, such as monthly charge, volume of

messages sent or received, etc. Additional tables would store information to aid in tracking these changes. The billing mechanism would periodically process the information to generate bills for users.

5 There are many other features of electronic mailing list systems such as Majordomo and Listserv that are well known to those skilled in the art, that have obvious additional features for the present invention.

#### DESCRIPTION - ALTERNATIVE EMBODIMENTS FOR THE PRESENT INVENTION

As discussed earlier, there are many alternative embodiments of the present invention.  
10 People need personalized, tunable communities. They need the ability to specify and match up with other people in a variety of electronic forums. This invention is a very powerful way of allowing them to do that - to see only the people they're matched to see. It's like going to a party with all the right people.

The differences between different kinds of forums is often simply the latency of the  
15 transmissions between parties. Whereas a forum like email has a high latency, a forum such as chat has continuous transmission between the parties, or low latency.

One alternative embodiment is voicemail. Voicemail is very similar to electronic mail in that users typically have a mailbox, and there are group distribution lists, like electronic mailing lists for email. Interaction is non-realtime: each user uses voicemail without any real-time, direct  
20 interaction. Thus voicemail, being so similar to email, is a direct application of the present invention to that medium. The user may access the service visually (e.g., web) or aurally (e.g., telephone).

Another alternative embodiment for the present invention is unified messaging. Unified messaging is a medium that combines email, voicemail, fax, and potentially other  
25 communication services and lets each user select their medium of choice. Sun, Lucent and a number of other companies develop unified messaging solutions. Since unified messaging can always get from other mediums to email, unified messaging is a direct application of the present invention to that medium. These are just different mediums for communication, but they aren't materially different for our purposes. In the preferred embodiment all setup, control, and access  
30 to subscriptions, shared data, etc, happens via the web. One modification to that for this alternative is to allow that setup, control, and access to happen via email (or email translated to other unified messaging mediums) instead of the web.



A natural extension to unified messaging is to include telephone, pager, and instant messaging communication, as additional mediums of communication. A user may use different forms of unified messaging for different subscriptions. For instance, a user may want to receive casual neighborhood discussion via email, but receive emergency messages from any neighbor within 5 blocks via text pager, and any communication (e.g., "can I borrow a cup of sugar?") within one block of them, via both instant messaging and fax.

Another alternative embodiment for the present invention is web-based discussion boards. FIG. 7 is a diagram detailing a process for this alternative. Web-based discussion boards are very similar to mailing lists, but users receive and reply to messages (and possibly send messages) through a web site rather than an email client application. In other words, rather than messages flowing in and out of the users email-box, there is instead a bulletin board metaphor with a web interface. The subscription process is substantially the same. The system then keeps track of which messages each user has and hasn't read. The message boards section of the Motley Fool web site ([www.fool.com](http://www.fool.com)) (Dec. 1998) are an example in the prior art of a web-based discussion board, without benefit of the present invention.

Another alternative embodiment for the present invention is electronic bulletin boards. The most common electronic bulletin boards on the internet are USENET newsgroups (hereafter referred to as newsgroups). The subscription process in this alternative is substantially the same; the main differences come in reading and posting messages. Subscribers post messages through the service provider's server. This could be through a newsgroup server port, or using a web interface, via email to the service provider, etc. Since newsgroup postings are replicated on servers throughout the internet, there is some efficiency to be gained by encoding some of the database information about the posting user in headers of the posted message. This allows client newsgroup reading programs to do some decoding and matching without having to interact with the service provider's server. Examples of message headers are: "X-Posting-Type: Dynamically Matched Posting", "X-DM-User: joe\_hotmail". The system may also encode insensitive profile and acceptance criteria data from the posting user in message headers. Let's call this full set of headers "Dynamic Matching™ Headers." (An example of insensitive profile data is whether the subscriber considers himself to be a "professional" or "amateur" in a given field. A home address is an example of sensitive profile data that, if needed, will have to be evaluated privately at the service provider's server during a user's news reading session.)

The client newsgroup reading application may use the Dynamic Matching™ Headers for matching or may require subscribers to read messages through some method provided by a service provider that is utilizing the present invention. In the latter case the client newsgroup reading software knows how to exchange with the server the extra information needed to support the present invention. It informs the server of the identity of the user who is reading messages. The server then only transmits messages whose users form a two-way user match and message acceptance criteria match with the reading user. Alternatively, the newsgroup reading software may allow the user to see all postings, but highlight matching ones using color, icons, etc. The server in this case transmits additional information to the news reading software about which individual posted messages should have this special highlighting.

If the client newsgroup reading software knows how to interpret Dynamic Matching™ Headers, it may choose to do the matching itself, which may be more efficient than accessing the server for determining match status for each message.

Another alternative embodiment for the present invention is online gaming rendezvous. Services such as "Yahoo! Games" (December 1998) offer forums in which users can meet up for games of cards and other internet-based multi-player online games. Indeed nearly all commercial computer games today have some multi-player internet features built in. The typical online gaming forum divides the users into skill levels (their main acceptance criterion) and the users then have to rendezvous via chat to start a game, or jump into an already-formed game. A common experience is to quit part way through a game when you find that your gaming companions are a bad match, in conversation style, speed of play, etc. Applying the present invention, the service provider would offer a host of profile acceptance criteria and profile data to help users rendezvous with the best partners. There is still a registration process for collecting base user profile data. The subscription process is more transient, being more of a "gaming preferences" setup. Following the setup, the user is presented with a set of players who match up with the user based on a mutual acceptance criteria match. They can then chat, send each other instant messages to invite each other to play, etc. When messages are sent they may include message profile data to allow matched users to apply their message acceptance criteria. An alternative is to show the user all other users, but denote the matching users through an icon or other graphic highlighting. The system also shows the browsing user games in progress that have open slots, highlighting the users within those games matched to the browsing user. He can then join a game that will have the best chance of being satisfying to him.

Another alternative embodiment for the present invention is online gaming. Many users can play the game simultaneously, but each user only interacts with other users they are mutually matched to. The game software is designed to allow for game play in which each user sees only the other players he is matched to see. This is very similar in implementation to online gaming rendezvous, with additional functionality built into the game play to account for this customized per-player environment.

Another alternative embodiment for the present invention is instant messaging. Instant messaging services such as ICQ, "Yahoo! Pager", AOL Instant Messenger, and Excite PAL allow a user to send another user an immediate text message that pops up on the other user's screen while the user is connected to the messaging system. This is typically when they are connected to the internet and running the messaging client application. Instant messaging applications do not as of yet have the equivalent of electronic mailing lists, i.e., a way to send an instant message to a group of users. Applying the present invention to instant messaging requires no change to the subscription. An additional user interface component in the instant messaging software or on a web page allows the user to see a list of all matching users who are logged on. This happens within the context of a subscription to a particular forum. The user may then choose to send a message to any one user on that list. Sending of messages to an entire matching group is routed through the service provider's instant messaging server, which determines which message recipients will receive the message. It then distributes the message to those recipients. As an example of its use, a user may have two subscriptions set up – she wants to hear from all neighbors within five blocks from her about for sale items, and all neighbors within one block of her about emergencies.

Another alternative embodiment for the present invention is online chat. The subscription process is modified in a way similar to online gaming rendezvous. In today's online chat, users begin by selecting a chat room, and then chatting with everyone in that forum. There is typically a way to ignore specified users. The present invention allows a first user to set up more elaborate acceptance criteria only interacting with other users who form a one-way or mutual user profile match with the first user. Alternatively, it allows full chat exchange with all users, but highlights in the user list & message window those users that form a mutual user profile match with the first user. Using matching scores, the system can even display stronger matches in darker colors and weaker matches in lighter colors. Subscription settings may apply to one or more chat rooms. After setting up a subscription, the user can view a list of chat rooms and see what rooms

the people he's matched with are spending their time in. He can then select a room and begin interacting. The message profile and acceptance criteria are not used. Alternatively, the message profile and acceptance criteria are used to help users communicate about specific subjects. In that case the system queries the user for message profile data if it cannot be determined automatically.

Another alternative embodiment for the present invention is video conferencing. This is similar to online chat and online gaming rendezvous. The invention is used for finding good videoconferencing partners within a given forum, by either highlighting matching users or only showing matching users. The present invention can be used with either one on one video conferencing, or with group video conferencing. In a group setting, each user conferences with many matching users at once, limited only by the limitations of number of simultaneous user connections in the video conferencing system. Message profiles and message profile acceptance criteria are not used.

Another alternative embodiment for the present invention is audio conferencing, or "party line." This is an obvious extension of online chat, and similar to video conferencing, wherein multiple users have an audio-only real-time connection to each other in a group setting. This is implemented in substantially the same manner as video conferencing.

Another alternative embodiment for the present invention is online clubs and communities, such as "Yahoo! Clubs" (Dec. 1998). In these services, a group forms around a theme, and users can chat, post messages to a discussion board, share web links of interest, etc., within that group. By using the present invention, the user can create a personal, tunable niche within the group. The subscription process is the same: after selecting a club, a user can specify his acceptance criteria of interest within the club. The user then only sees content (chat, message postings, web links, pictures, calendar entries, etc.) of other users who form a two-way match with the user. The chat portion is handled as discussed in the online chat application above. Message postings are handled as described in web-based discussion boards above. Other areas are handled in a similar fashion. Alternatively, the system may allow for one-way acceptance criteria application: the first user sees content from second users who the first user's acceptance criteria matches, without regard to the second users' acceptance criteria. Another alternative process is for the system to allow moderators, club owners, and other "authorities" to view all messages, even if there is no mutual acceptance criteria match.

Another alternative embodiment is web surfing community forums. These forums provide a means for users to exchange messages with each other based on the web sites they are viewing. This service can be provided independently of the web sites that users are posting messages to. This is done through web browser plug-ins and other new technology that allow  
5 the exchanged messages to be stored somewhere other than the currently-viewed web site. When users are browsing that site or a particular page at that site, the messages are retrieved from the independent data store and displayed to the user.

In this embodiment, the message exchange may happen in real-time (e.g., chat) or time-shifted (e.g., posting messages). For example, users at a site such as CNN.com could  
10 communicate with other users who are on that site at the same time, or who come to the site at other times. The present invention is modified to use the web site address (e.g., www.local2me.com) the user is viewing to match the user with other users. Alternatively it could use the address of a specific page being viewed within the web site (e.g., www.local2me.com/community/internet.html).

For real-time message exchange in this embodiment, the web site or page the user is  
15 viewing is used for user profile values. Users can set as part of their user profile acceptance criteria one or many web pages or web sites. As an example, a user at CNN.com's user profile data would include CNN.com as his currently viewed web site (or alternatively a page within the site). His user profile acceptance criteria could include all users at CNN.com, ABCsports.com,  
20 MSNBC.com, and PBS.org. For time-shifted message exchange, the web site or page the user is viewing when he posts a message is stored as part of the message profile data (not the user profile data). Other users can set as part of their message profile acceptance criteria one or many web pages or sites. An example: user X goes to eBay.com and posts a message using the present invention, and then leaves the web site. User Y goes to eBay.com and sees user X's message if  
25 X and Y form a two-way match of user profiles to user profile criteria and if user Y's message profile criteria matches to user X's posted message's message profile data.

To summarize the web surfing community forums embodiment, let's take an example. A single forum, called "web surfers," is created by Local2Me.com to dynamically match web surfers from all over the world as they are surfing web sites. It allows users to chat with each  
30 other in a group forum when they are on the same web site. A user John joins the "web surfers" forum through the Local2Me.com web site. He sets his user profile as a 23 year old single male, living in New York City. He sets his user profile acceptance criteria to match men and women

between ages of 18-28, within 100 miles of him. A separate window for chatting opens next to his main browser window. John now begins surfing the web in his main browser window, and as he enters each web site, the chatting window updates to show him the users also browsing that web site that he's matched to. John can now exchange messages with users as he surfs the web.

- 5        Clearly, in the burgeoning online communications arena there will be other electronic forums that can apply the present invention to great avail.

#### CONCLUSION, RAMIFICATIONS, AND SCOPE OF INVENTION

- 10        Thus the reader will see that the present invention, Dynamic Matching™ of Users for Group Communication, provides a process by which individuals of all ages and profiles may locate very high quality, personalized matched groups of people for highly satisfying affinity group communications and community.

- 15        While my above description contains many specificities, these should not be construed as limitations on the scope of the invention, but rather as an exemplification of one preferred embodiment thereof. Many other variations are possible. Several examples, including newsgroups, online chat, web discussion boards, and instant messaging have been explored in the alternative embodiments section above.

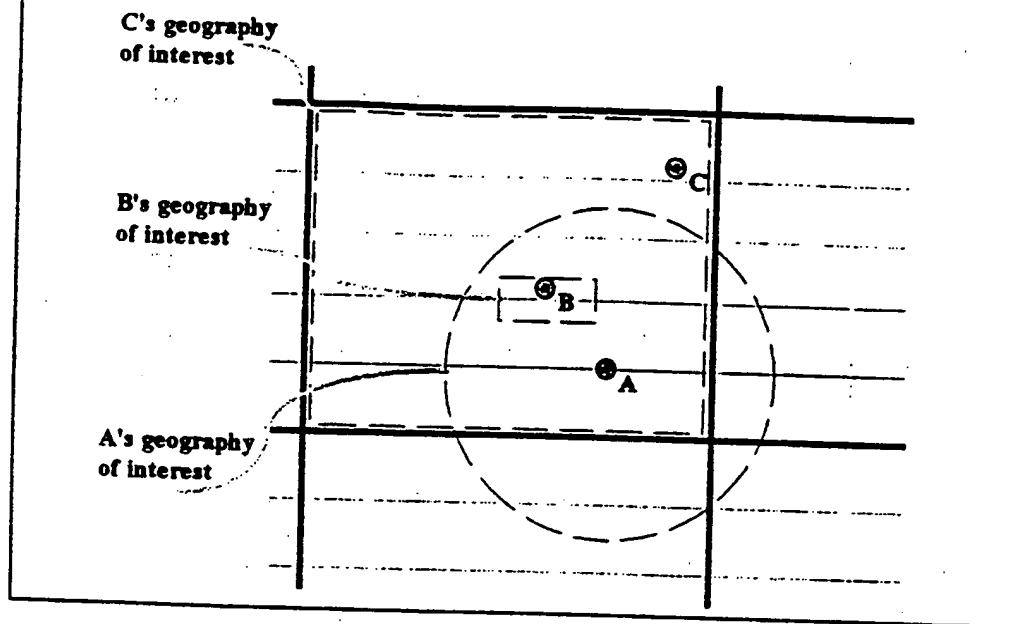
Accordingly, the scope of the invention should be determined not by the embodiment(s) illustrated, but by the appended claims and their legal equivalents.

## CLAIMS

What is claimed is:

- 1 1. A method for enabling users to exchange group electronic mail according to established  
2 individual profiles and criteria determining individualized groups, comprising the steps of:  
3 establishing user subscriptions to an electronic mailing service list by specifying user  
4 profiles and profile criteria to screen other users;  
5 establishing and storing in a service web server an individualized recipient list of  
6 subscribers who form a mutual criteria match with each user;  
7 receiving a message sent by a user to the server;  
8 filtering the user's recipient list down to a message distribution list using each recipient's  
9 message criteria; and  
10 distributing the message to matching users.

**Figure 1: Three residents and their geographies of interest**





**Figure 2: Overview of Use**

-200

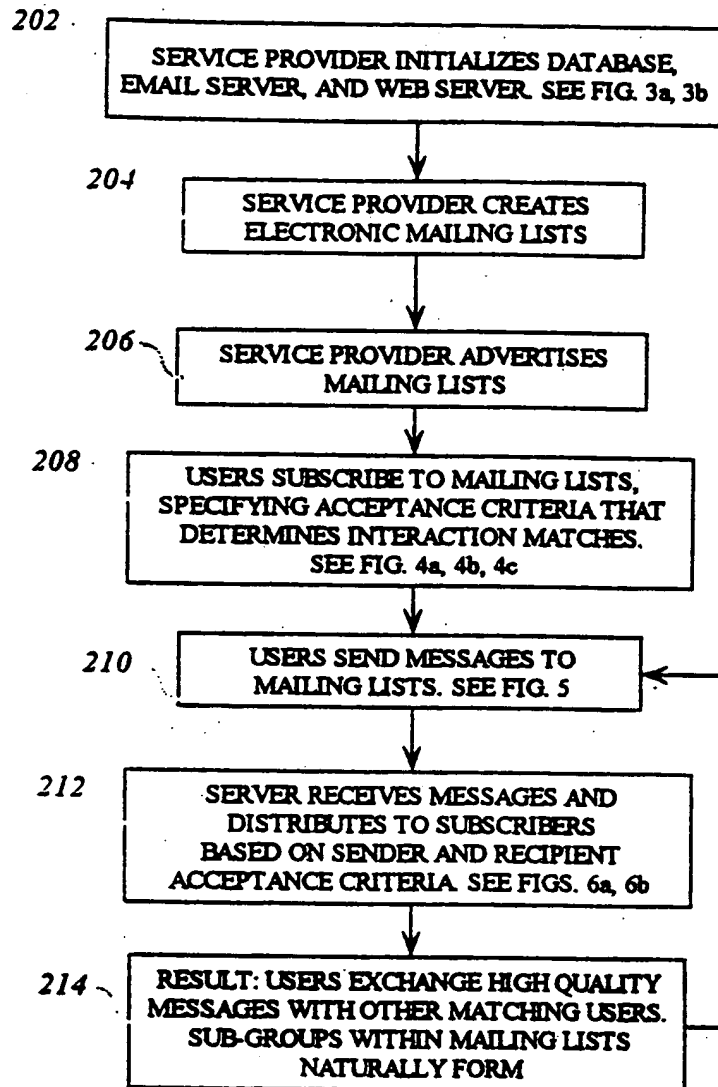


Figure 3a: System's Database

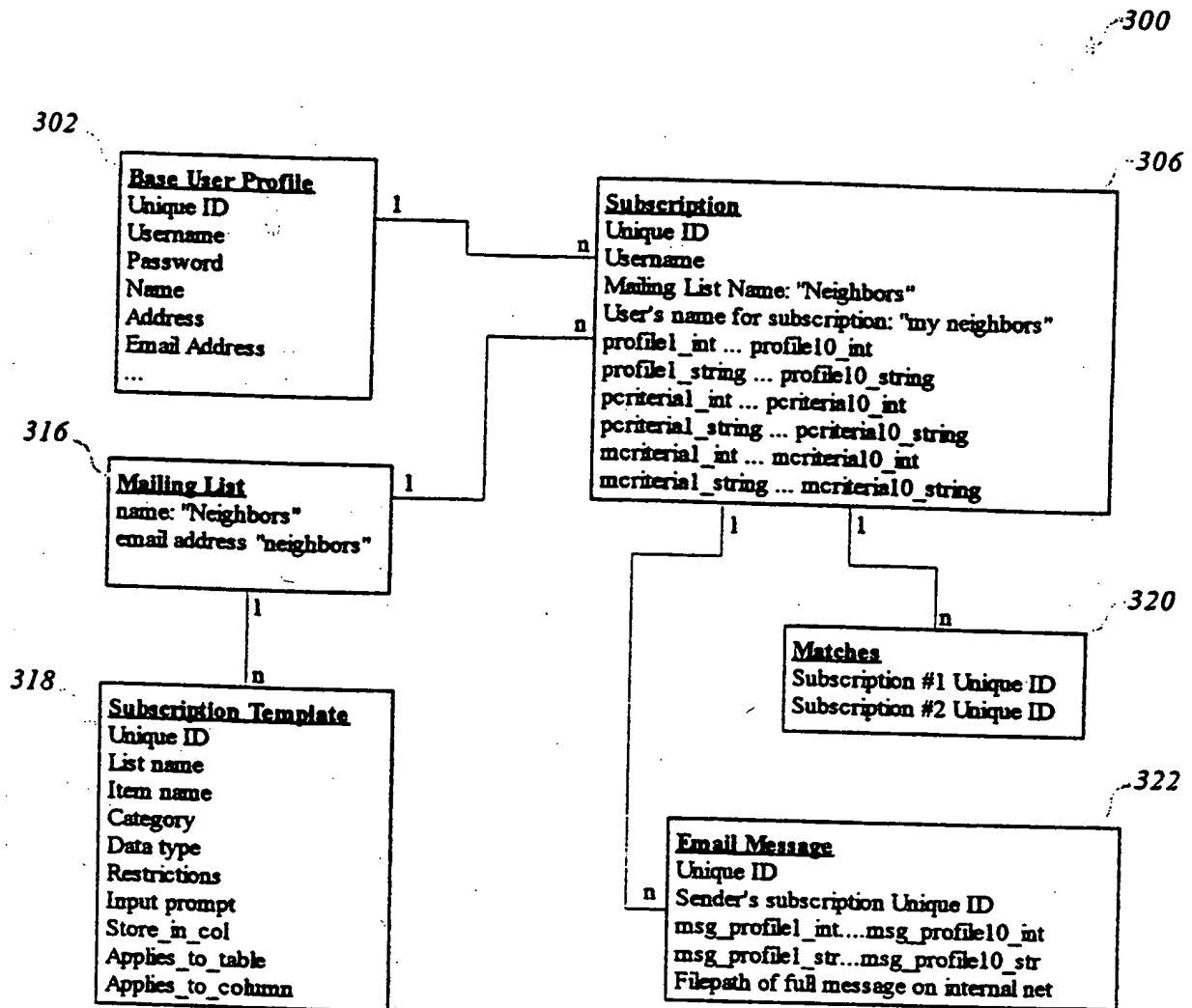


Figure 3b: System Servers' Data Flow

340

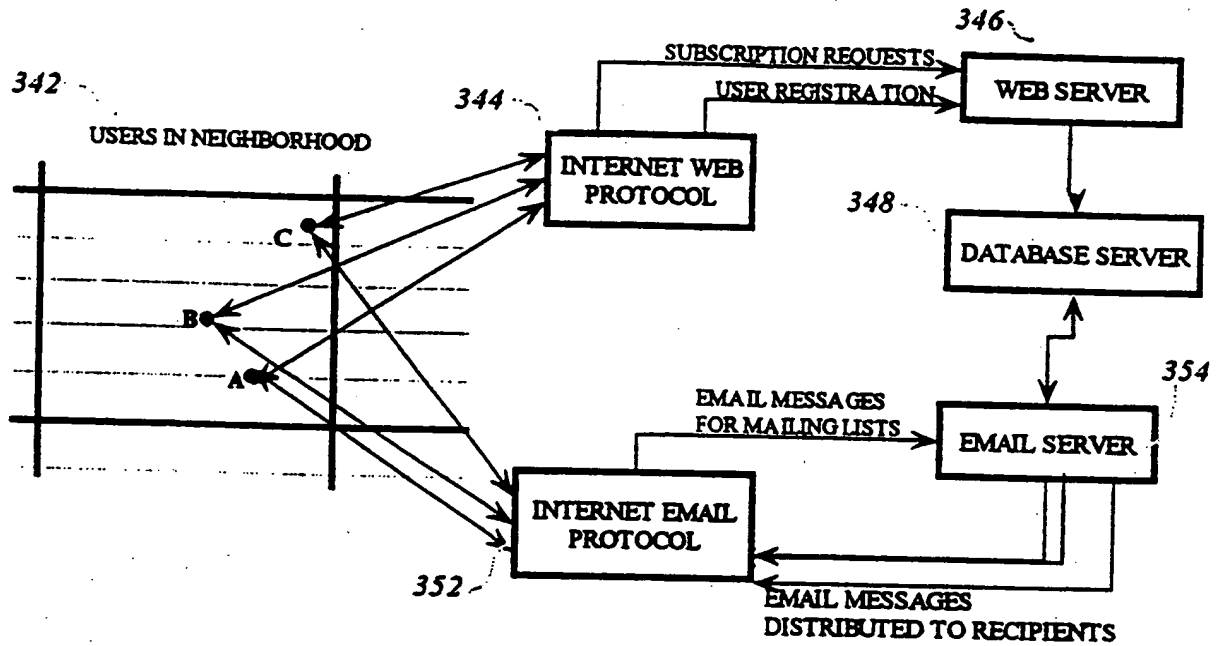


Figure 4a: Example Subscription User Interface

208

402 Subscribing to the "Neighborhood" mailing list

404 About you:

☒ Resident  
☐ Business

406 Who you want to email with:

408 ☒ Residents ☐ Businesses

People within 2 miles of you 410

412 What you want to exchange email about:

414 Subjects

☒ News  
☐ Recommendations  
☐ Other

416 Content Search: NOT "for sale"

OK  
CANCEL

Figure 4b: User subscription process

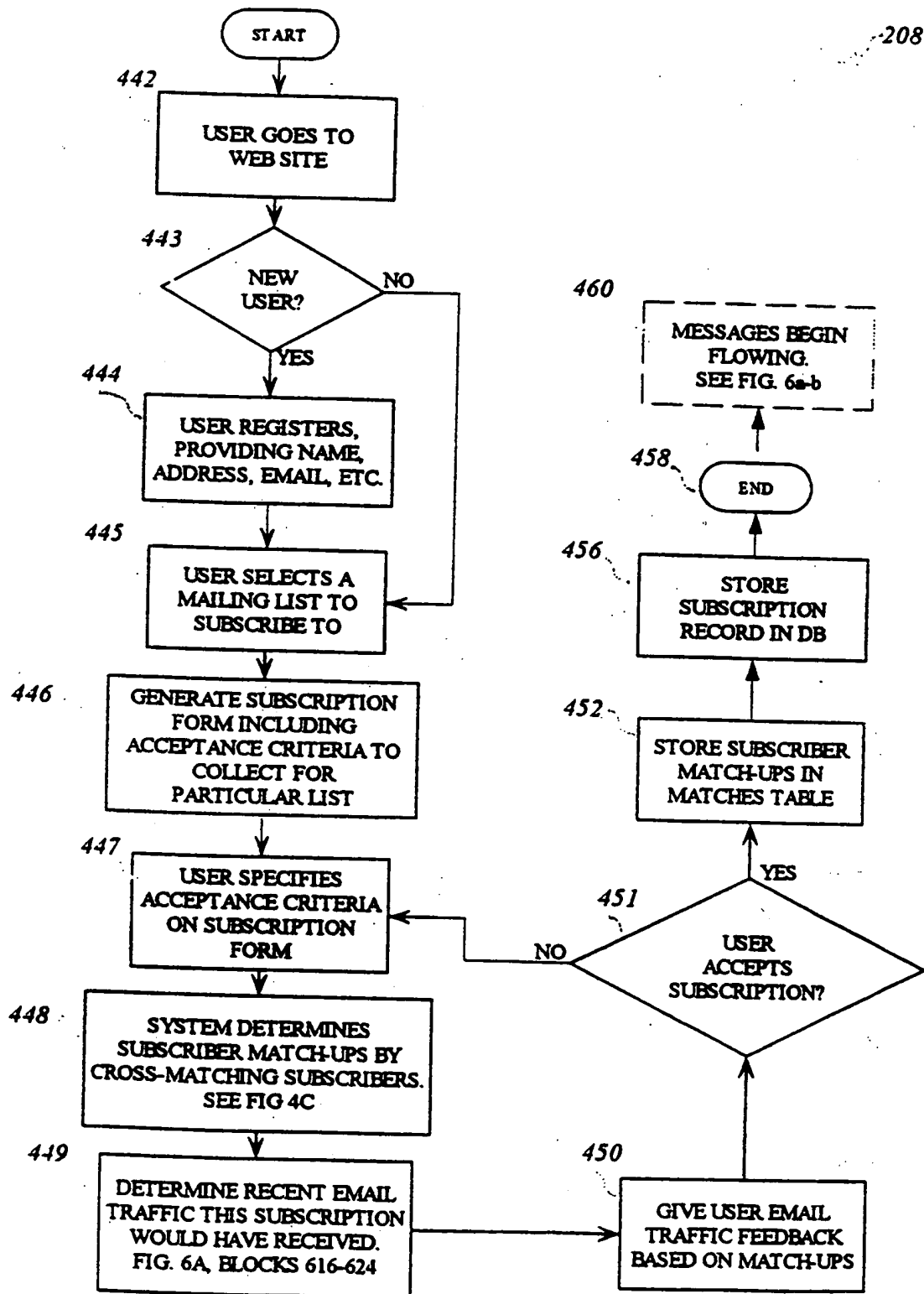
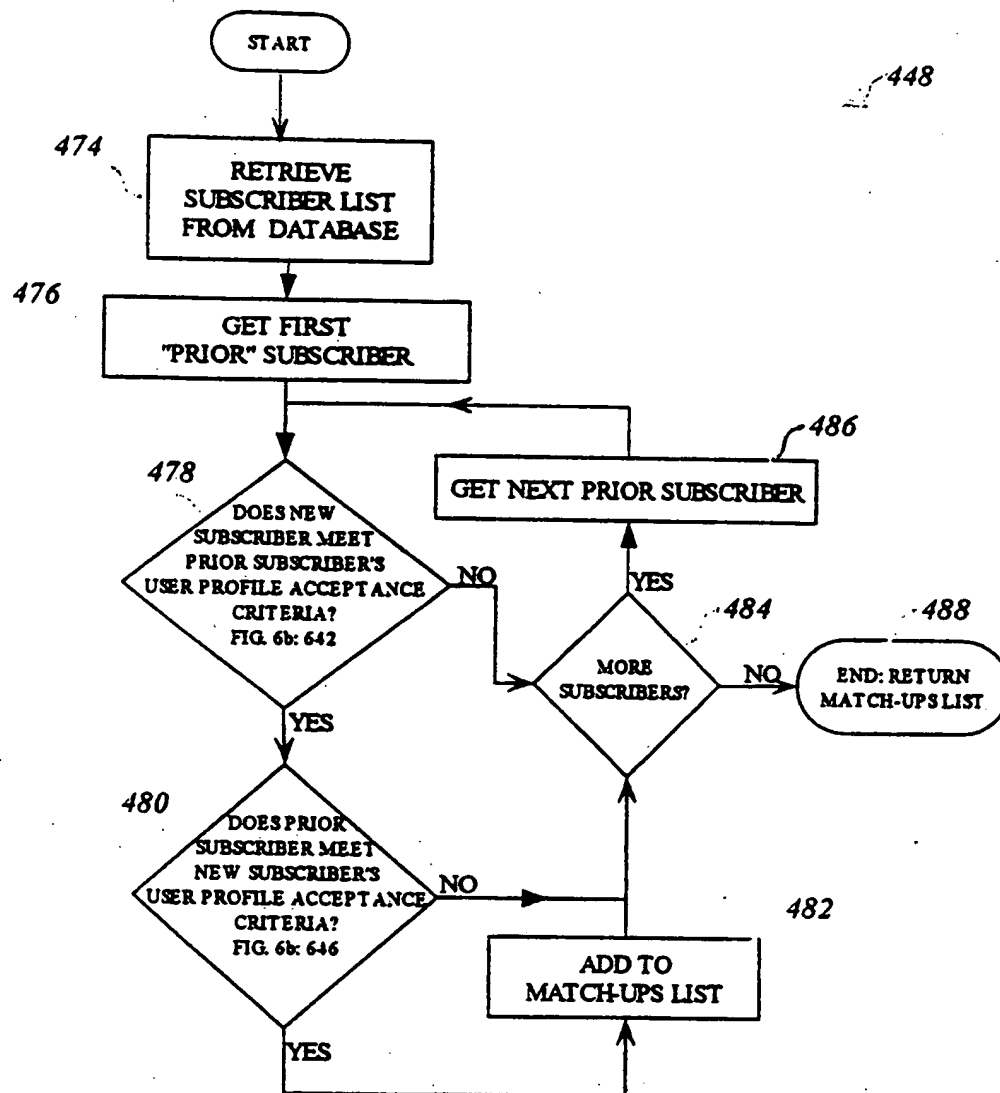
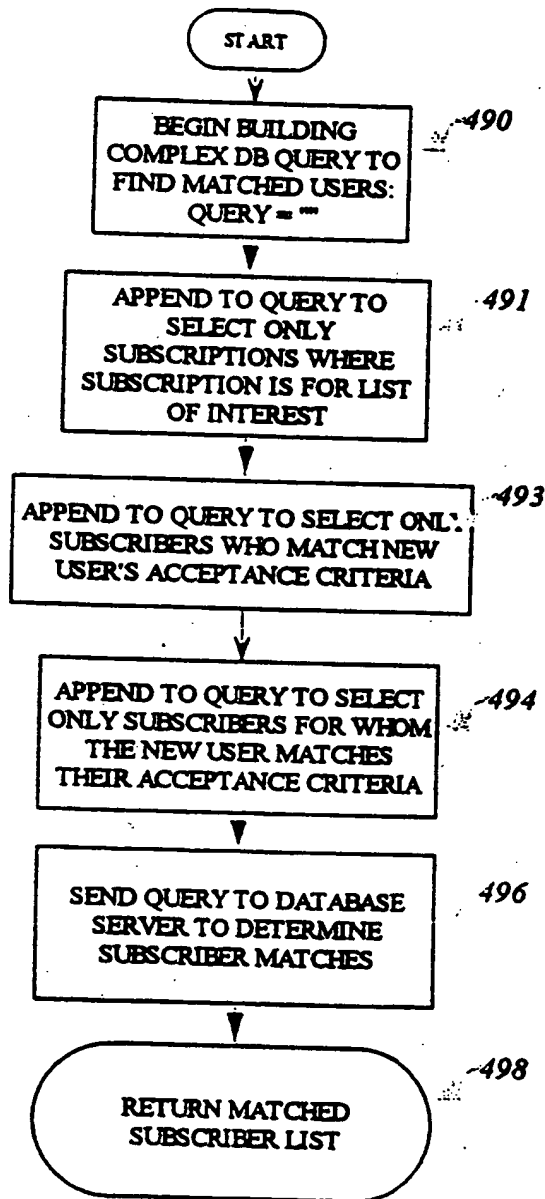


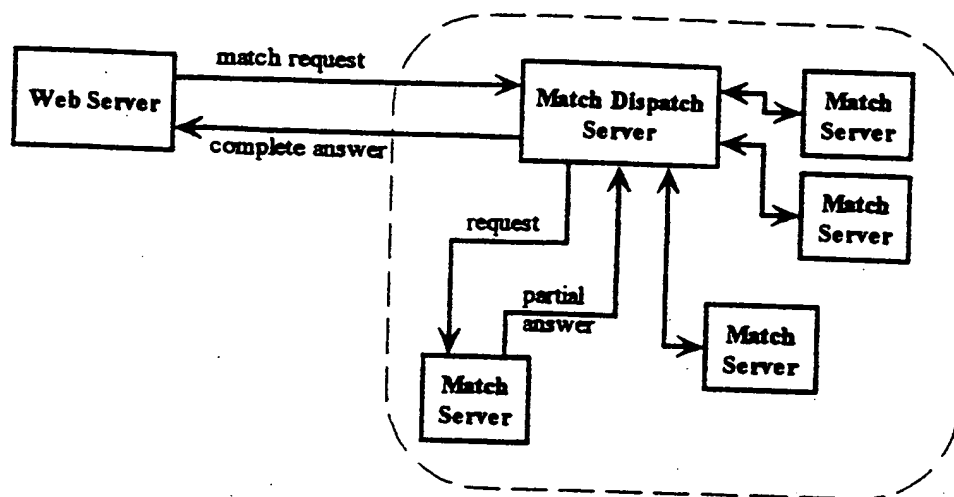
Figure 4c: Determining Subscriber Match-Ups



**ALTERNATIVE EMBODIMENT:**  
**Figure 4c-ALT1: Determining Subscriber Match-Ups**



**ALTERNATIVE EMBODIMENT:**  
**Figure 4c-ALT2: Determining Subscriber Match-Ups**  
**(Distributed Cluster of Match Servers)**





**Figure 5: Example of Users Send Messages To Mailing Lists**

502

To: neighbors@dfists.com  
From: ygreenest@local2me.com (Yolanda Greenest)  
Subject: finding a good remodeling contractor  
Date: May 12, 1998

Hi all,

Looking for a great remodeler to help us redo our kitchen. Does anyone have a recommendation?

thanks!  
-Y

210

504

To: neighbors@local2me.com  
From: whoever@somewhere.com (W. Hoever)  
Subject: Re: finding a good remodeling contractor  
Date: May 12, 1998

I really like Frank Varney. He's an Eichler specialist and did a great job on a big remodel for us. We had checked his refs beforehand and heard from several other very satisfied customers.

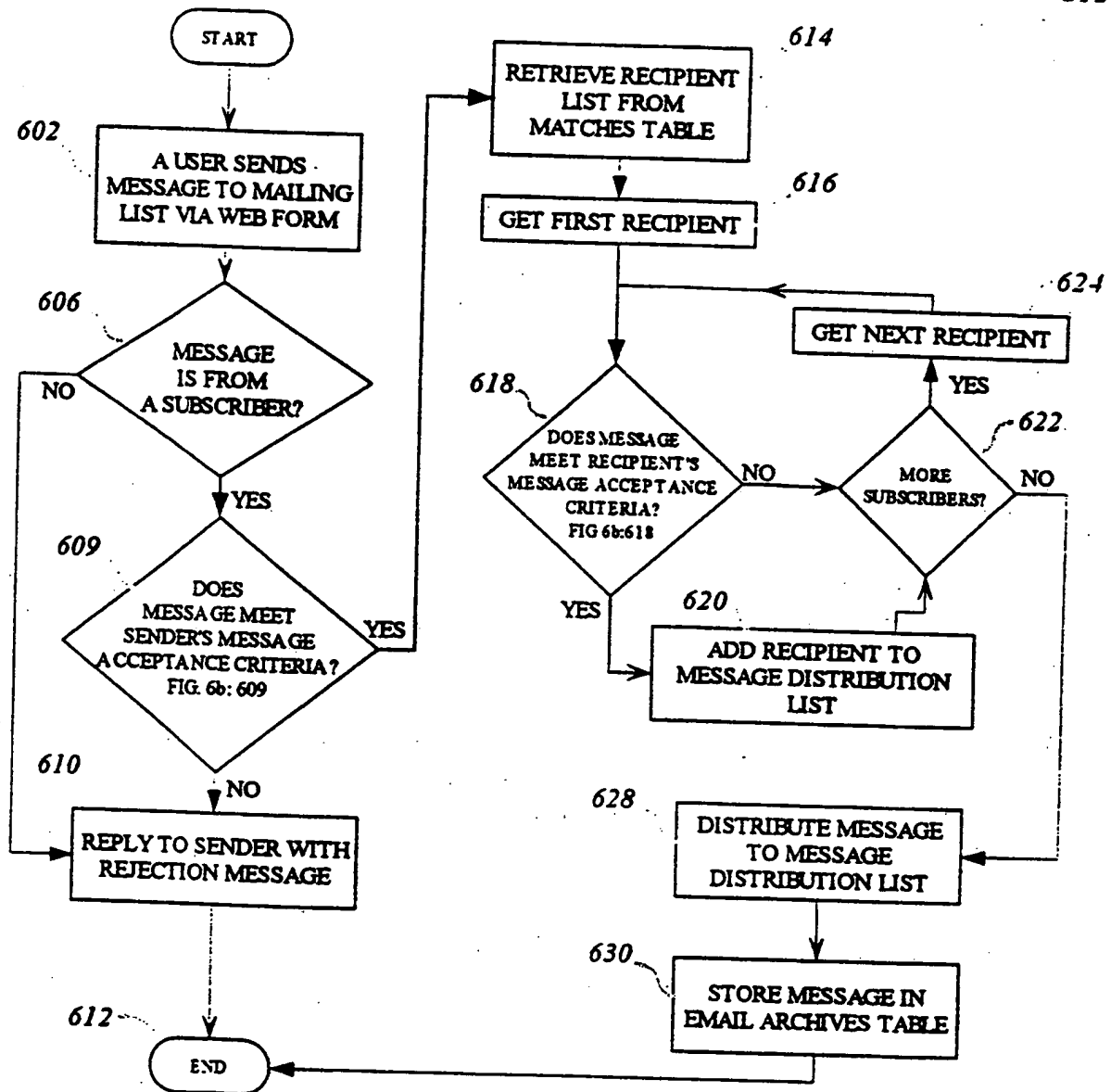
- Will

Yolanda Greenest wrote:

> Hi all,  
>  
> Looking for a great remodeler to help us redo our kitchen. Does anyone have a  
> recommendation?  
>  
> thanks!  
> -Y

Figure 6a: Message Distribution Process

212



**ALTERNATIVE EMBODIMENT:**  
**Figure 6a-ALT1: Message Distribution Process**

212

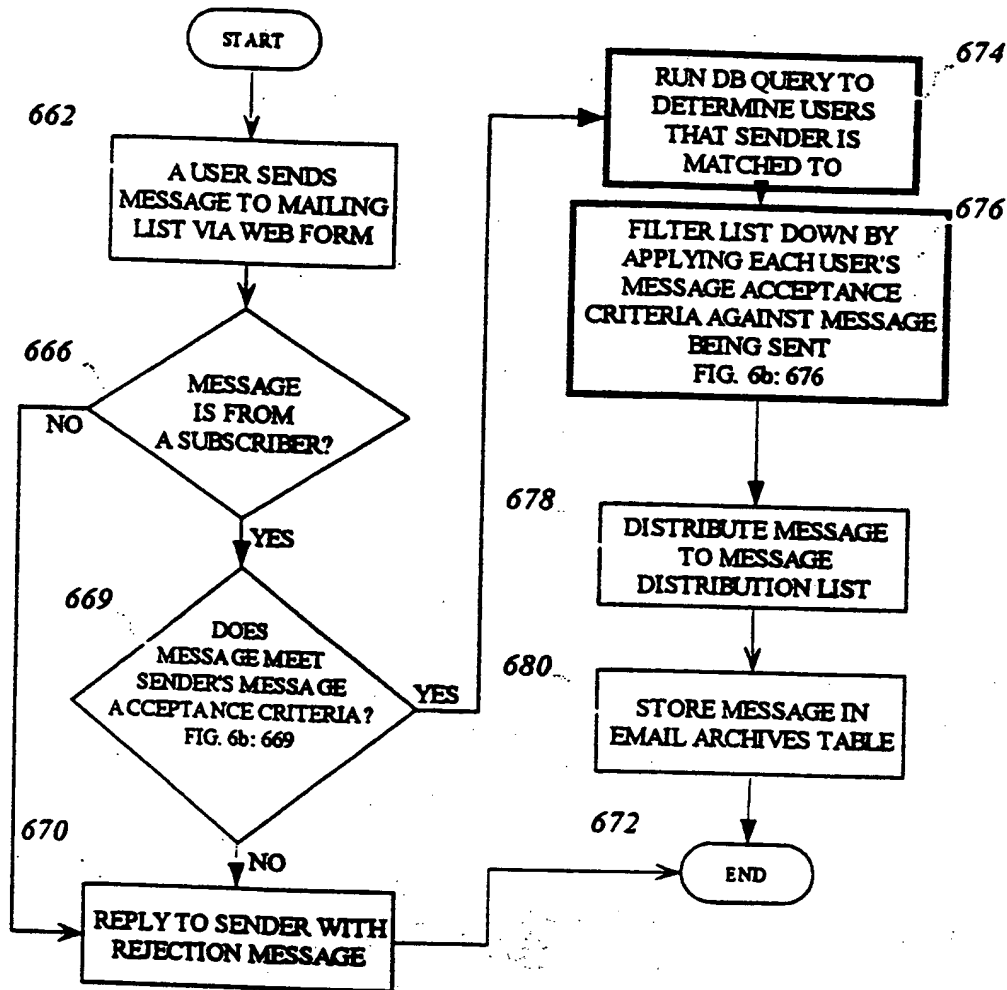
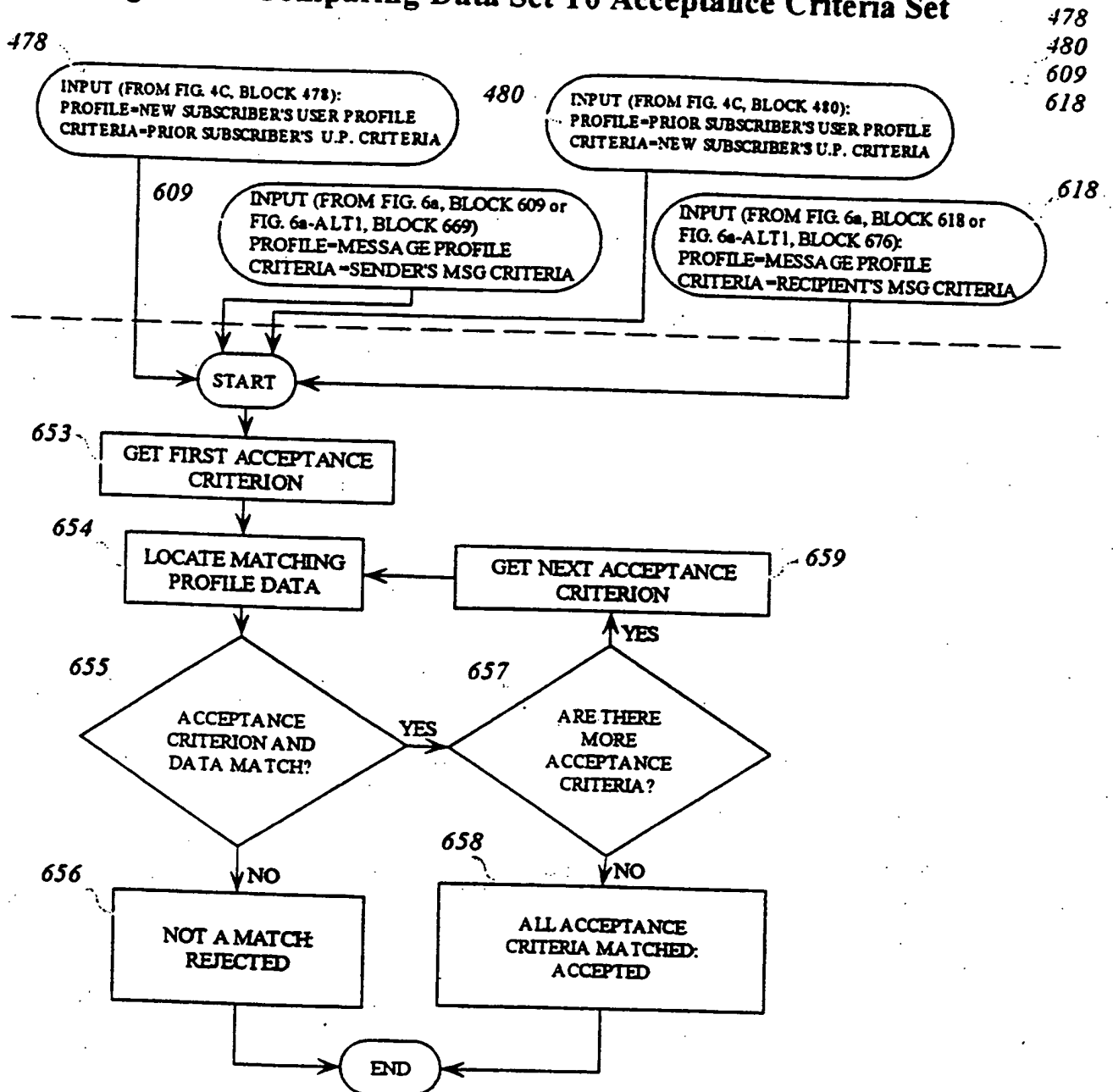
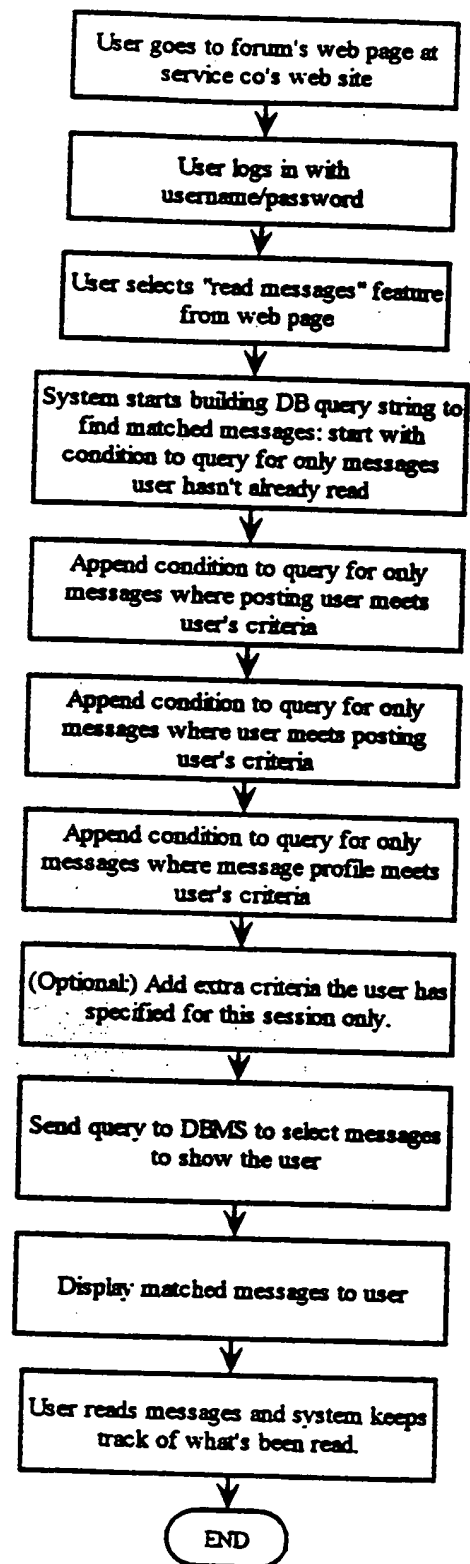


Figure 6b: Comparing Data Set To Acceptance Criteria Set



Alternative Embodiment:  
FIG. 7: User reads messages in web-based discussion forum





## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

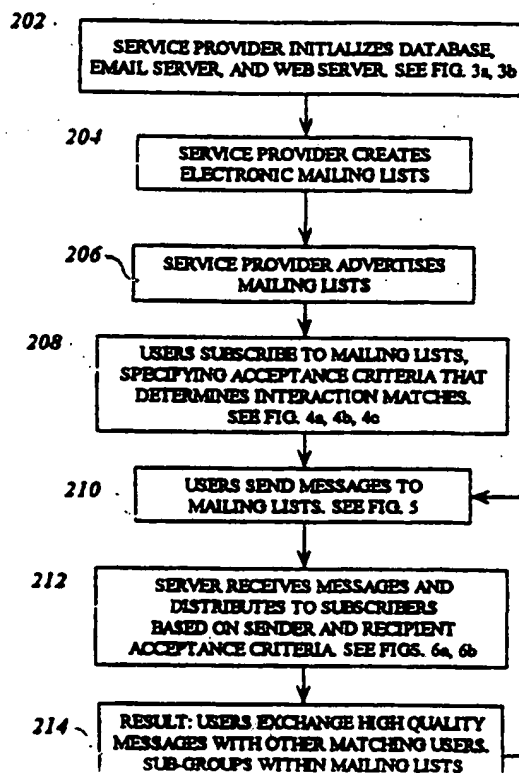
(51) International Patent Classification <sup>6</sup> : <b>G06F 15/16</b>		A1	(11) International Publication Number: <b>WO 00/16209</b>
			(43) International Publication Date: 23 March 2000 (23.03.00)
(21) International Application Number: PCT/US99/21589		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).	
(22) International Filing Date: 15 September 1999 (15.09.99)			
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(71) Applicant (for all designated States except US): LO-CAL2ME.COM, INC. [US/US]; 2517 Nedson Court, Mountain View, CA 94043 (US).			
(72) Inventor; and (75) Inventor/Applicant (for US only): OLIVIER, Michael [-/US]; 2517 Nedson Court, Mountain View, CA 94043 (US).		Published With international search report. With amended claims.	
(74) Agents: HAMRICK, Claude, A.; S. et al.; Oppenheimer Wolff & Donnelly LLP, Suite 200, 3373 Hillview Avenue, Palo Alto, CA 94304 (US).		Date of publication of the amended claims: 4 May 2000 (04.05.00)	

(54) Title: DYNAMIC MATCHING™ OF USERS FOR GROUP COMMUNICATION

## (57) Abstract

A method for users to exchange group electronic mail by establishing individual profiles and criteria (302) for determining individualized groups. Users establish subscription (208) to an electronic mailing list (204) by specifying user profiles and profile criteria (302) to screen users. When a user subscribes (208), a web server (346) establishes and stores an individualized list (204) of subscribers (208) who form a mutual criteria match with the user. When the user then sends a message to the mailing list (210), an email server (354) filters her recipient list down to a message distribution list using each recipient's message criteria (302). The message is then distributed to matching users. Additionally, email archives and information contributions from users are stored in a database. A web server creates an individualized set of web pages for a user from the database, containing contributions only from users in his recipient list. In other embodiments, users apply mutual criteria matching and message profile criteria to other group forums, such as newsgroups, voicemail, instant messaging, chat, web-based discussion boards, and online gaming rendezvous.

## Overview of Use



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## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : G06F 15/16

US CL : 709/202

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

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U.S. : 709/202

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
STN

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,513,126 A (HARKINS et al.) 30 APRIL 1996, ALL	1
A	US 5,694,616 A (JOHNSON et al.) 02 DECEMBER 1997, ALL	1
A	US 5,796,393 A (MACNAUGHTON et al.) 18 AUGUST 1998, ALL	1
A,P	US 5,864,684 A (NIELSEN) 26 JANUARY 1999, ALL	1
A,P	US 5,909,679 A (HALL) 01 JUNE 1999, ALL	1
X,P	US 5,923,845 A (KAMIYA et al.) 13 JULY 1999, Col. 7, line 20, col. 8, lines 12-13, col. 19-20	1
X,E	US 5,956,693 (A GEERINGS) 21 September 1999, col. 3-4	1

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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## INTERNATIONAL SEARCH REPORT

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## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category <sup>a</sup>	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,E	US 5,999,932 A (PAUL) 07 December 1999, ALL	1

## AMENDED CLAIMS

[received by the International Bureau on 25 February 2000 (25.02.00);  
original claim 1 replaced by new claims 1-22 (6 pages)]

- 5 1. A method of dynamically matching users for group communication comprising the steps of:
- a) establishing acceptance criteria parameters and user profile data parameters;
  - b) obtaining acceptance criteria data and user profile data corresponding to acceptance criteria parameters and user profile data parameters for each of a multiplicity of users;
  - 10 c) calculating the degree of matches between the user profile data of each of said multiplicity of users to acceptance criteria data of others of said multiplicity of users;
  - d) receiving a communication from a particular one of said multiplicity of users including message data and user identity; and
  - e) making said message data available to a subset of said multiplicity of users whose degree of match is 100%.
- 15
2. A method of dynamically matching users for group communication comprising the steps of:
- a) establishing acceptance criteria parameters and user profile data parameters;
  - b) obtaining acceptance criteria data and user profile data corresponding to acceptance criteria parameters and user profile data parameters for each of a multiplicity of users;
  - 20 c) calculating the degree of matches between the user profile data of each of said multiplicity of users to acceptance criteria data of others of said multiplicity of users;
  - d) receiving a communication from a particular one of said multiplicity of users including message data and user identity; and
  - 25 e) making said message data available to each of said multiplicity of users, including an indication of the degree of match.
3. A method of dynamically matching users for group communication comprising the steps of:
- a) establishing acceptance criteria parameters and user profile data parameters;
  - b) obtaining acceptance criteria data and user profile data corresponding to acceptance criteria parameters and user profile data parameters for each of a multiplicity of users;
  - 30 c) receiving a communication from a particular one of said multiplicity of users including message data and user identity;

d) calculating degree of matches between the user profile data of said particular one and the acceptance criteria data of said multiplicity of users; and

e) making said message data available to a subset of said multiplicity of users whose degree of match is 100%.

5

4. A method of dynamically matching users for group communication comprising the steps of:

a) establishing acceptance criteria parameters and user profile data parameters;

b) obtaining acceptance criteria data and user profile data corresponding to acceptance criteria parameters and user profile data parameters for each of a multiplicity of users;

10 c) receiving a communication from a particular one of said multiplicity of users including message data and user identity;

d) calculating degree of matches between the user profile data of said particular one and the acceptance criteria data of said multiplicity of users; and

15 e) making said message data available to each of said multiplicity of users, including an indication of the degree of match.

5. A method of dynamically matching users for group communication comprising the steps of:

a) establishing acceptance criteria parameters and user profile data parameters;

20 b) obtaining acceptance criteria data corresponding to acceptance criteria parameters for each of a multiplicity of users;

c) receiving a communication from an unknown user including message data and user profile data;

d) calculating degree of matches between the user profile data of said unknown user and the acceptance criteria data of said multiplicity of users; and

25 e) making said message data available to a subset of said multiplicity of users whose degree of match is 100%.

6. A method of dynamically matching users for group communication comprising the steps of:

a) establishing acceptance criteria parameters and user profile data parameters;

30 b) obtaining acceptance criteria data corresponding to acceptance criteria parameters for each of a multiplicity of users;

c) receiving a communication from unknown user including message data and user profile data;

d) calculating degree of matches between the user profile data of said unknown user and the acceptance criteria data of said multiplicity of users; and

e) making said message data available to each of said multiplicity of users, including an indication of the degree of match.

5

7. A method of dynamically matching users for group communication comprising the steps of:

a) establishing acceptance criteria parameters and user profile data parameters;

b) receiving a communication from an unknown user including message data and user profile data;

10 c) obtaining acceptance criteria data corresponding to acceptance criteria parameters for each of a multiplicity of users;

d) calculating degree of matches between the user profile data of said unknown user and the acceptance criteria data of said multiplicity of users; and

15 e) making said message data available to a subset of said multiplicity of users whose degree of match is 100%..

8. A method of dynamically matching users for group communication comprising the steps of:

a) establishing acceptance criteria parameters and user profile data parameters;

20 b) receiving a communication from an unknown user including message data and user profile data;

c) obtaining acceptance criteria data corresponding to acceptance criteria parameters for each of a multiplicity of users;

d) calculating degree of matches between the user profile data of said unknown user and the acceptance criteria data of said multiplicity of users; and

25 e) making said message data available to each of said multiplicity of users, including an indication of the degree of match..

9. A method of dynamically matching users for group communication comprising the steps of:

a) establishing acceptance criteria parameters and user profile data parameters;

30 b) obtaining user profile data corresponding to user profile data parameters for each of a multiplicity of profiled users;

c) receiving a communication from a particular one of said multiplicity of profiled users including message data and user identity;

d) obtaining acceptance criteria data corresponding to acceptance criteria parameters for each of a multiplicity of other users who may or may not be profiled users;

e) calculating degree of matches between the user profile data of said particular one and the acceptance criteria data of said multiplicity of other users; and

5 f) making said message data available to a subset of said multiplicity of other users whose degree of match is 100%.

10. A method of dynamically matching users for group communication comprising the steps of:

a) establishing acceptance criteria parameters and user profile data parameters;

10 b) obtaining user profile data corresponding to user profile data parameters for each of a multiplicity of profiled users;

c) receiving a communication from a particular one of said multiplicity of profiled users including message data and user identity;

15 d) obtaining acceptance criteria data corresponding to acceptance criteria parameters for each of a multiplicity of other users who may or may not be profiled users;

e) calculating degree of matches between the user profile data of said particular one and the acceptance criteria data of said multiplicity of other users; and

f) making said message data available to each of said multiplicity of other users, including an indication of the degree of match.

20

11. A method of dynamically matching users for group communication as recited in any one of claims 1, 2, 3, and 4 wherein in step b) acceptance criteria data and user profile data are obtained by extracting information from sources other than directly from the users.

25 12. A method of dynamically matching users for group communication as recited in any one of claims 5, 6, 7, and 8 wherein in said obtaining step acceptance criteria data is obtained by extracting information from sources other than directly from the users.

30 13. A method of dynamically matching users for group communication as recited in any one of claims 9 and 10 wherein in step d) acceptance criteria data is obtained by extracting information from sources other than directly from the users.

35 14. A method of dynamically matching users for group communication as recited in any one of claims 9 and 10 wherein in step b) user profile data is obtained by extracting information from sources other than directly from the users.

15. A method of dynamically matching users for group communication as recited in any one of claims 3 and 4 wherein in step d) the degree of matches between acceptance criteria data of said particular one and user profile data of said multiplicity of users is also included in the calculation of the degree of matches.

16. A method of dynamically matching users for group communication as recited in any one of claims 5, 6, 7, and 8 and further comprising the step of:

before said calculating step, obtaining user profile data corresponding to user profile data parameters for each of said multiplicity of users;

wherein the communication received from said unknown user in said receiving step additionally includes acceptance criteria data; and

wherein in said calculating step the degree of matches between acceptance criteria data of said unknown user and user profile data of said multiplicity of users is also included in the calculation of the degree of matches.

17. A method of dynamically matching users for group communication as recited in any one of claims 1 and 2 wherein in step c) the degree of matches between acceptance criteria data of each of said multiplicity of users to user profile data of others of said multiplicity of users is also included in the calculation of the degree of matches.

18. A method of dynamically matching users for group communication as recited in any one of claims 9 and 10 and further comprising the steps of:

collecting user profile data corresponding to user profile data parameters for ones of said multiplicity of other users for whom user profile data is not known; and

collecting acceptance criteria data corresponding to acceptance criteria data parameters for said particular one;

wherein in step e) the degree of matches between acceptance criteria data of said particular one and user profile data of said multiplicity of other users is also included in the calculation of the degree of matches; and

wherein in step e) the degree of matches between the collected acceptance criteria and the collected user profile data is also included in the calculation of the degree of matches.

19. A method of dynamically matching users for group communication as recited in any one of claims 9 and 10 and further comprising the step of:

collecting user profile data corresponding to user profile data parameters for ones of said multiplicity of other users for whom user profile data is not known;

wherein in step c) additionally receiving acceptance criteria data corresponding to acceptance criteria data parameters for said particular one;

5 wherein in step e) the degree of matches between acceptance criteria data of said particular one and user profile data of said multiplicity of other users is also included in the calculation of the degree of matches; and

wherein in step e) the degree of matches between the collected acceptance criteria and the collected user profile data is also included in the calculation of the degree of matches.

10

20. A method of dynamically matching users for group communication as recited in any one of claims 1, 3, 5, 7, and 9 and further comprising the steps of:

associating a unique message identifier with said message data;

associating said subset of said multiplicity of users with said unique message identifier;

15 receiving a reply communication from one of said multiplicity of users including reply message data, reply user identity, and said unique message identifier; and

making said reply message data available to said subset of users.

20 21. A method of dynamically matching users for group communication as recited in any one of claims 2, 4, 6, 8, and 10 and further comprising the steps of:

associating a unique message identifier with said message data;

associating said multiplicity of users and said indication of degree of match with said unique message identifier;

25 receiving a reply communication from one of said multiplicity of users including reply message data, reply user identity, and said unique message identifier; and

making said reply message data available to all said users.

22. A method of dynamically matching users for group communication as recited in any one of claims 1, 3, 5, 7, and 9

30 wherein after said establishing step and before said calculating step at least some of said users select a match threshold; and

further wherein in said step of making message data available, said message data is also made available to a second subset of users who selected a match threshold and whose match threshold is less than 100% and greater than or equal to said degree of match.

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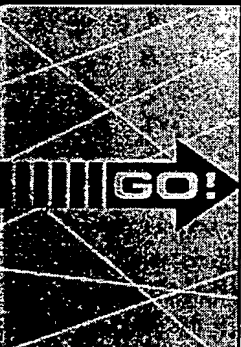
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## Chat Software

**Diana Luckevich**

March 1, 1998

**802.11  
PLANET.**  
Conference & Expo  
Fall 2002  
Dec. 3 - 5  
Santa Clara, CA

Chat software is all the rage on the Internet. Is it time to add some real-time interactivity to your site or are you a chat user and want to learn about your options? Do you need a real-time communication forum for your users? With the number of chat software packages available today, how do you decide which one to use? Read this overview of chat software capabilities, complete with a administrator check list of software features.

Chat software provides the ability to "talk" using your keyboard in real-time with other people on a network of computers like the Internet or a company Intranet. This textual real-time way of communicating is very popular with people who have special interests. It allows people to join a conversation in a public meeting room during most any hour of the day. Scheduled chats allow people to meet at predefined times to discuss topics of special interest.

Chat software is used to create customer support centers, interactive training facilities, business meetings, special interest groups and just plain get-togethers. Chat rooms are a cost effective means to talk to others in different countries where a telephone call would be cost prohibitive. Chat rooms offer an alternative form of communication to email, telephone, regular mail, and in person communication. Chat software is categorized as either IRC or Web-based.

### Internet Relay Chat (IRC)

The IRC technology is older than the newer Web-based chat technology. IRC uses a text-based communication protocol on a client/server network. The server computer connected to the Internet hosts multiple IRC connections. The users connect to this server with specialized software that resides on their client computer. Because the server can host multiple simultaneous connections, users can communicate with each other by passing messages to the server which relays the messages to all users currently logged on to the IRC channel. An IRC channel is similar to a room where a group of users meet. Channels are given a name by the user who creates the channel, who is known as the channel operator. Subsequent users must JOIN the channel to participate. The channel may be restricted to only users who have been invited.



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Internet Lists  
International  
EarthWeb  
Career Resources  
Search internet.com  
Advertise  
Corporate Info  
Newsletters  
E-mail Offers

IRC software must be downloaded, installed and configured on each client computer before a user can start chatting. Users must learn the IRC command language to participate in a chat session. IRC software does not run under a browser and it lacks fancy graphics capabilities.

IRC protocol is defined in this technical article that specifies the protocol standard for IRC software.

IRC Networks and ServerLists provides a list of IRC networks grouped by size, along with a comment on the focus of each chat group. This site has a list of abbreviations and their meaning, used by users to save typing while chatting. It provides instructions on IRC commands as well as hints for IRC etiquette.

### IRC Chat Software

ConferenceRoom is an IRC based client and server software package offered by the WebMaster, Inc. aimed at business communication.

ICQ is chat software from Mirabilis Ltd. It allows you to create a contact list of friends and informs you when your friends are logged in. The software runs on Windows based computers as well as Mac 68k's and Power PC's.

mIRC is a shareware chat program developed for Windows based client computers.

### Web-based Chat

Web-based chat software consists of a web browser enabled client software component and a server software component. The client software can be a browser plug-in, a Java applet, or a plain HTML page. A browser plug-in requires the users to download and install the software prior to participating in a chat. A Java applet is available to the user after it is automatically downloaded by the browser. A plain HTML page chat software system provides a chat client that is an automatically refreshed HTML page delivered to the client computer. This HTML chat software allows embedded HTML tags to be provided by chat users. For example, people can actually type in HTML tags to change the font of their messages to shout or to include pictures or links to other web sites. All web-based client chat software is embedded within an HTML page, which enables the customization of the user interface. The HTML page with the embedded chat client can also display graphics like GIFs and JPEGs and additional logic using Javascript and Java to enhance the functionality of the chat page. This customization is a popular feature for those chat rooms that are advertiser supported with ad banners prominently displayed to all chat users.

### Web Based Chat Software

The Chat Server is a product offered by Magma Communications, Ltd. This software appends users messages immediately to the end of a web page that is displayed to everyone in the room. This software allows embedded HTML tags in messages, which allows for URL links to other web pages and graphics files.

ParaChat is a Java based chat system that provides private rooms and the ability to resize and float the chat room window on the client desktop. The administrator can define security to ban users by name or IP address, define room topics, get logs of what was said in the chat sessions, and define room passwords.

ChitChat is a Macintosh based multimedia communication software package for networks that supports text communication, speaking into a microphone and displaying images. Text is displayed in a continuous scrolling window, graphics may be displayed in a separate image window. This software can be accessed locally via Ethernet or LocalTalk networks or remotely via Apple Remote Access.

Volano Chat from Volano LLC is chat software package that has Java based client and server components.

eShare Expressions from eShare Technologies, Inc. is a chat package with clients in ActiveX, Java, Java Light, and HTML. eShare Expressions operates behind firewalls. It offers buddy lists, IRC support, and an administrator communication log.

### **Chat Software buying decisions**

There are many things to consider when selecting a chat client/server software package. The following two checklists provide you a starting point for your own evaluation process. Most software is always in a state of improvement. New releases offer new features. To avoid the risk of quickly being out of date I have included a check list of features for you to use when evaluating the current state of chat software. Look over the features and decide which ones are required and optional for your particular requirements. Then visit the chat software resources to learn more about the available chat software products.

#### **Chat Software User Feature Checklist**

- private chat rooms
- buddy lists
- private messages
- customizable chat rooms
- members-only access
- embed HTML commands
- embed URL links
- spell checker
- help information
- easy to use
- attractive and friendly user interface
- client platform, Java, IRC, HTML, ActiveX
- free to use

#### **Chat Software Administrator Feature Checklist**

- in-room advertisement banners
- user Id and passwords administration
- no login requirement
- moderated chat rooms
- administer word filters (profanity removal)
- email support
- client screen real-estate requirement
- provide read-only access to rooms
- get transcript of chat sessions
- set room topics
- web tours
- BBS option (bulletin board)

- search features
- log control and log reporting
- access log, content log, server activity log, advertising log
- VMRL 3-D environment
- bump users out of room
- email user security information to participants
- open or close room to visitors
- integrate with RealMedia, MS Netshow, and Shockwave
- real-time status monitoring of room usage
- remote administrator capabilities
- firewall configuration
- site restrictions based on IP address
- restrict access to certain rooms
- RAM requirements for each room
- languages supported
- CPU load requirements
- bandwidth requirements for Internet connection
- disk space requirements
- servers that software runs on, (Unix or NT)
- built-in database
- authoring tool for chat client room design
- number of rooms possible
- number of users in each room
- documentation quality
- required additional server software for installation
- support offered by Chat software vendor
- daily maintenance required to administer system
- demo software available for a trial
- browser component for managing administration duties or FTP required
- cost

### **Chat Software Resources**

Conferencing on the WDWL provides links to resource sites such as Conferencing on the World Wide Web which provides a comprehensive and update-to-date alphabetical listing of chat software including its server platform and vendor.

New IRC Users provides a variety of information aimed at the beginning IRC chat user. This site has links to Mac IRC client software, information for AOL users, IRC commands, IRC newbie FAQ and links to IRC software.

Introduction to IRC for Windows users is a article written in question answer format that answers the fundamental questions for new IRC users.

Can We Chat is a PC Magazine article that discusses IRC software.

Chat User is a ZDNet guide to a variety of articles on the ZDNet sites about chat, conferencing and groupware.

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